ARCADIS
Infrastructure · Water · Environment · Buildings

ARCADIS U.S., Inc.
100 Montgomery Street, Suite 300
San Francisco, California 94105
Tel 415.374.2744
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Re: Third Quarter 2011 Monitoring Report
Former BP Station #11102
100 MacArthur Boulevard
Oakland, California
ACEH Case #RO0000456

ENVIRONMENTAL

"I declare that to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached document are true and correct."

Date:
10/28/2011

Submitted by:

ARCADIS U.S., Inc.

Hollis E. Phillips, PG
Project Manager

Contact:
Hollis E. Phillips

Phone:
415.374.2744 ext 13

Email:
Hollis.phillips@arcadis-us.com

Our ref:
GP09BPNA.C112

REGISTERED GEOLOGIST
HOLLIS E. PHILLIPS
No. 6887
STATE OF CALIFORNIA

Third Quarter 2011 Monitoring Report
Former BP Service Station #11102
100 MacArthur Boulevard, Oakland, California
ACEH Case #RO0000456

Prepared for

Ms. Hollis Phillips, PG
Senior Geologist
ARCADIS-US, Inc.
100 Montgomery Street, Ste. 300
San Francisco, California 94104

On behalf of

Atlantic Richfield Company
PO Box 1257
San Ramon, California 94583

Prepared by

875 Cotting Lane, Suite G
Vacaville, California 95688
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October 31, 2011

Project No. 09-88-643

Broadbent & Associates, Inc.
875 Cotting Ln., Suite G
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(707) 455-7290 Tel
(707) 455-7295 Fax

BROADBENT & ASSOCIATES, INC
ENVIRONMENTAL, WATER RESOURCES & ENGINEERING

October 31, 2011 Project No. 09-88-643

ARCADIS-US, INC.
100 Montgomery Street, Ste. 300
San Francisco, CA 94104

Attn.: Ms. Hollis Phillips, PG

Re: Third Quarter 2011 Monitoring Report, Former BP Service Station #11102,
100 MacArthur Boulevard, Alameda County, Oakland, California;
ACEH Case #RO0000456

Dear Ms. Phillips:

Attached is the Third Quarter 2011 Monitoring Report for Former BP Service Station #11102 located at 100 MacArthur Boulevard, Oakland, Alameda County, California. Should you have questions regarding the work performed or results obtained, please do not hesitate to contact us at (707) 455-2790.

Sincerely,
BROADBENT & ASSOCIATES, INC.

Samuel Barkley
Senior Staff Geologist

Thomas A. Sparrowe, P.G.
Senior Geologist

Enclosures

cc: Mr. Paresh Khatri, Alameda County Environmental Health (submitted via ACEH ftp site)
Electronic copy uploaded to GeoTracker

THIRD QUARTER 2011 MONITORING REPORT
FORMER BP SERVICE STATION #11102, OAKLAND, CALIFORNIA

Broadbent & Associates, Inc. (BAI) is pleased to present this *Third Quarter 2011 Monitoring Report* on behalf of ARCADIS USA, Inc. and Atlantic Richfield Company (a BP affiliated company) for Former BP Service Station #11102 located in Oakland, Alameda County, California. Monitoring activities at the site were performed in accordance with the reporting requirements issued by the Alameda County Environmental Health Services Agency (ACEH). Details of work performed, discussion of results, and recommendations are provided below.

Facility Name / Address:	Former BP Service Station #11102 / 100 MacArthur Boulevard, Oakland, California
Client Project Manager / Title:	Ms. Hollis Phillips, PG / Senior Geologist
BAI Contact:	Sam Barkley & Tom Sparrowe, (707) 455-7290
BAI Project No.:	09-88-643
Primary Regulatory Agency / ID No.:	ACEH / Case #RO0000456
Current phase of project:	Monitoring
List of Acronyms / Abbreviations:	See end of report text for list of acronyms/abbreviations used in report.

WORK PERFORMED THIS QUARTER (Third Quarter 2011):

1. Submitted *Second Quarter 2011 Monitoring Report*.
2. Conducted groundwater monitoring/sampling for Third Quarter 2011 on August 22, 2011.

WORK SCHEDULED FOR NEXT QUARTER (Fourth Quarter 2011):

1. Submit *Third Quarter 2011 Monitoring Report* (contained herein).

ADDITIONAL WORK RECOMMENDED FOR NEXT QUARTER (Fourth Quarter 2011)

1. None.

GROUNDWATER MONITORING PLAN SUMMARY:

Groundwater level gauging:	MW-1 through MW-4	(Semi-Annually: 1Q & 3Q)
Groundwater sample collection:	MW-1 through MW-4	(Semi-Annually: 1Q & 3Q)
Biodegradation indicator parameter monitoring:	DO, pH, Conductivity	(Semi-Annually: 1Q & 3Q)

QUARTERLY RESULTS SUMMARY:

LNAPL

LNAPL observed this quarter:	No	
LNAPL recovered this quarter:	None	(gal)
Cumulative LNAPL recovered:	None	(gal)

Groundwater Elevation and Gradient:

Depth to groundwater:	10.39 MW-1 to 12.29 MW-2	(ft below TOC)
Gradient direction:	West-Southwest	(compass direction)
Gradient magnitude:	0.05	(ft/ft)
Average change in elevation:	-0.69	(ft since last measurement)

Laboratory Analytical Data

Summary: MTBE was detected in MW-1, MW-2, MW-3 and MW-4. TBA was detected in MW-2. TAME was detected in MW-2 and MW-3. Other petroleum hydrocarbon constituents were below detection levels.

ACTIVITIES CONDUCTED & RESULTS:

Third Quarter 2011 groundwater monitoring was conducted on August 22, 2011 by BAI personnel in accordance with the monitoring plan summarized above. No irregularities were noted during water level

gauging. Depth to water measurements ranged from 10.39 ft at MW-1 to 12.29 ft at MW-2. Resulting groundwater surface elevations ranged from 65.97 ft at MW-4 to 79.81 ft at MW-1. Groundwater elevations are summarized in Table 1. Water level elevations yielded a potentiometric groundwater gradient to the west-southwest at approximately 0.05 ft/ft. Field methods used during groundwater monitoring are provided in Appendix A. Field data sheets are included in Appendix B. A Site Location Map is presented as Drawing 1. Potentiometric groundwater elevation contours are presented in Drawing 2.

Groundwater samples were collected on August 22, 2011, consistent with the current monitoring schedule. No irregularities were reported during sampling. Samples were submitted under chain-of-custody protocol to TestAmerica Laboratories, Inc. (Pleasanton, California) for analysis of Gasoline-Range Organics (GRO, C6-C12) by EPA Method 8015M; for Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX), Methyl Tertiary Butyl Ether (MTBE), Ethyl Tertiary Butyl Ether (ETBE), Tert-Amyl Methyl Ether (TAME), Di-Isopropyl Ether (DIPE), 1,2-Dibromomethane (EDB), 1,2-Dichloroethane (1,2-DCA), Tert-Butyl Alcohol (TBA) and Ethanol by EPA Method 8260. No significant irregularities were encountered during analysis of the samples. The laboratory analytical report, including chain-of-custody documentation, is provided in Appendix C.

MTBE was detected above the laboratory reporting limit in the four wells sampled at concentrations up to 2,600 µg/L in well MW-3. TAME was detected above the laboratory reporting limit in two wells sampled at concentrations up to 28 µg/L in well MW-3. TBA was detected above the laboratory reporting limit in the one well sampled at concentrations up to 3,100 µg/L in well MW-2. The remaining analytes were not detected above their laboratory reporting limits in the wells sampled this last monitoring event. Groundwater monitoring laboratory analytical results are summarized in Table 1 and Table 2. The most recent GRO, Benzene, and MTBE concentrations are also presented in Drawing 2. Groundwater monitoring data (GEO_WELL) and laboratory analytical results (EDF) were uploaded to the GeoTracker AB2886 database. Upload confirmation receipts are provided in Appendix D.

DISCUSSION:

Groundwater levels were between historic minimum and maximum elevations for wells MW-1, MW-2, MW-3 and MW-4. Groundwater elevations yielded a potentiometric groundwater gradient to the west-southwest at approximately 0.05 ft/ft, generally consistent with the historic flow direction and gradient data presented in Table 3.

This event's detected analytical concentrations were within the historic minimum and maximum ranges recorded for each well, with the following exceptions: TAME reached a historic minimum in MW-2 with a concentration of 39 µg/L, TBA reached a historic minimum in MW-1 with a concentration of <4.0 and MTBE has reached a historic minimum in MW-1 and MW-4 with concentrations of 1.1 µg/L and 3.7 µg/L, respectively. MTBE concentrations in MW-2 continue to exhibit a decreasing trend over time. Recent and historic laboratory analytical results are summarized in Table 1 and Table 2.

RECOMMENDATIONS:

Monitor well MW-4 was incorporated into the existing groundwater monitoring network since Fourth Quarter 2010 and has been sampled on a quarterly basis. The next scheduled environmental work is in Fourth Quarter of 2011. Following the Fourth Quarter of 2011 groundwater sampling event, it is recommended that the sampling frequency of well MW-4 be changed from Quarterly to Semi-Annually (1Q & 3Q). This change will coincide with the established monitoring program where wells MW-1, MW-2 and MW-3 will be monitored/sampled Semi-Annually (1Q & 3Q).

LIMITATIONS:

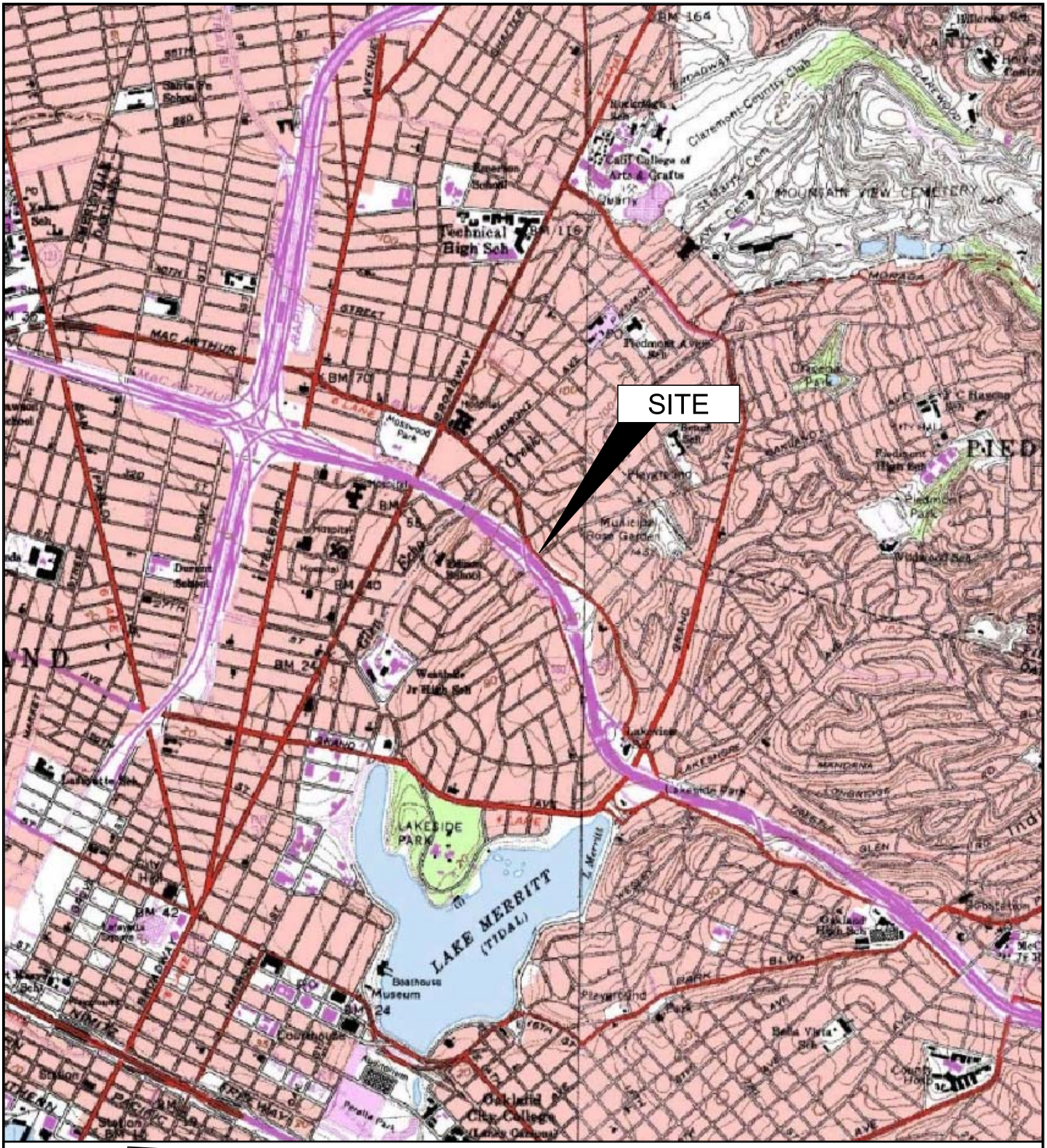
The findings presented in this report are based upon observations of field personnel, points investigated, results of laboratory tests performed by TestAmerica Laboratories, Inc. (Pleasanton, California), and our understanding of ACEH requirements. Our services were performed in accordance with the generally accepted standard of practice at the time this report was written. No other warranty, expressed or implied was made. This report has been prepared for the exclusive use of ARCADIS-US, Inc. and Atlantic Richfield Company (a BP affiliated company). It is possible that variations in soil or groundwater conditions could exist beyond points explored in this investigation. Also, changes in site conditions could occur in the future due to variations in rainfall, temperature, regional water usage, or other factors.

ATTACHMENTS:

Drawing 1:	Site Location Map
Drawing 2:	Groundwater Elevation Contours and Analytical Summary Map, August 22, 2011
Table 1:	Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
Table 2:	Summary of Fuel Additives Analytical Data
Table 3:	Historical Groundwater Gradient - Direction and Magnitude
Appendix A:	Field Methods
Appendix B:	Field Data Sheets
Appendix C:	Laboratory Report and Chain-of-Custody Documentation
Appendix D:	GeoTracker Upload Confirmation Receipts

LIST OF COMMONLY USED ACCRONYMS/ABBREVIATIONS:

ACEH:	Alameda County Environmental Health	ft/ft:	feet per foot
BAI:	Broadbent & Associates, Inc.	gal:	Gallons
BTEX:	Benzene, Toluene, Ethylbenzene, Total Xylenes	GRO:	Gasoline-Range Organics
1,2-DCA:	1,2-Dichloroethane	LNAPL:	Light Non-Aqueous Phase Liquid
DIPE:	Di-Isopropyl Ether	MTBE:	Methyl Tertiary Butyl Ether
DO:	Dissolved Oxygen	NO_3:	Nitrate as Nitrogen
DRO:	Diesel-Range Organics	ppb:	parts per billion
EDB:	1,2-Dibromomethane	SO_4:	Sulfate
Eh:	Oxidation Reduction Potential	TAME:	Tert-Amyl Methyl Ether
EPA:	Environmental Protection Agency	TBA:	Tertiary Butyl Ether
ETBE:	Ethyl Tertiary Butyl Ether	TOC:	Top of Casing
Fe^{2+}:	Ferrous Iron	µg/L:	Micrograms per liter



BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, CA 95926
Project No.: 06-88-643 Date: 10/1/09

Former Station #11102
100 MacArthur Boulevard
Oakland, California

Site Location Map

Drawing
1

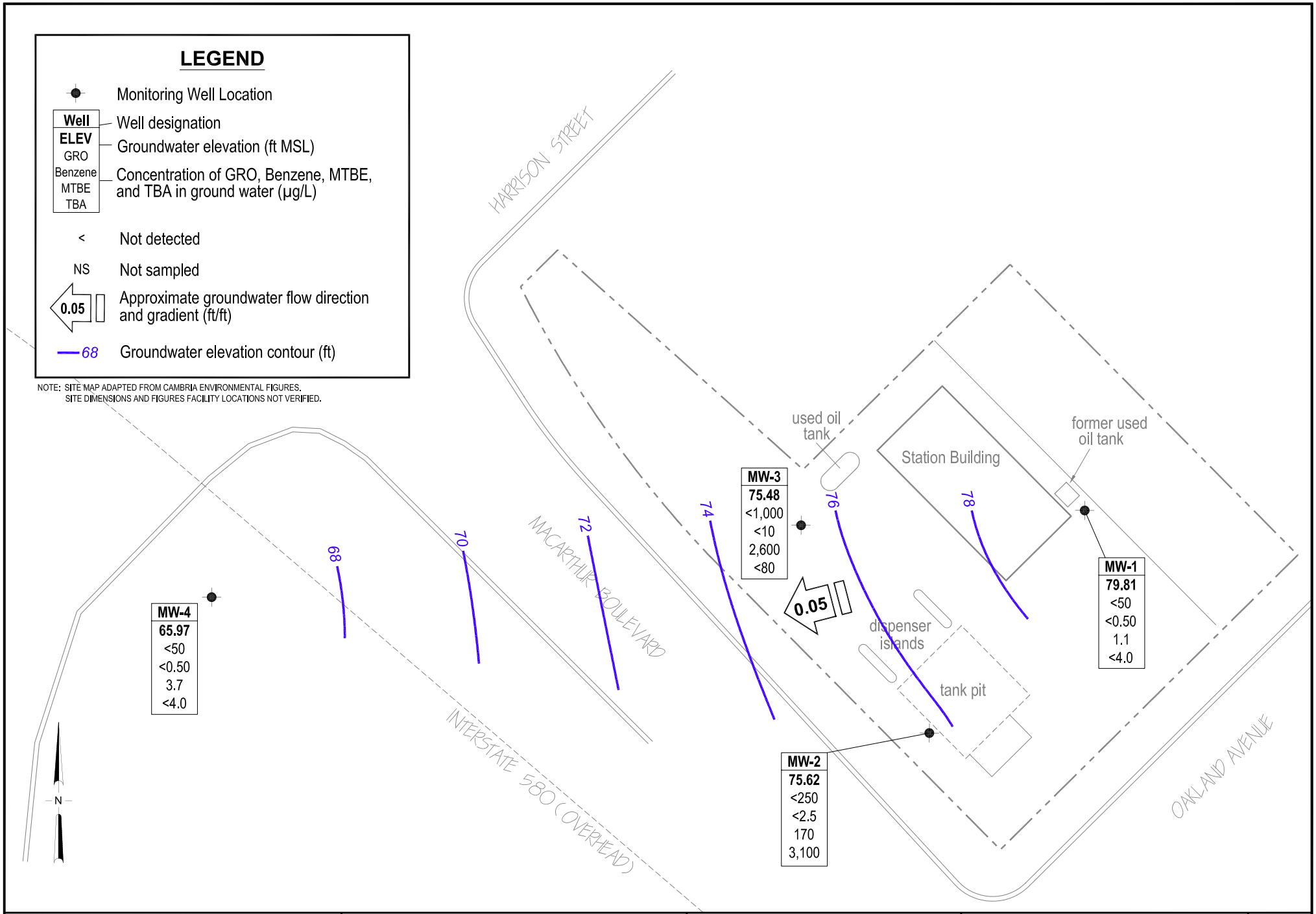

LEGEND
Monitoring Well Location
Well
ELEV
GRO
Benzene
MTBE
TBA
Well designation
Groundwater elevation (ft MSL)
Concentration of GRO, Benzene, MTBE, and TBA in ground water (µg/L)
< Not detected
NS Not sampled
0.05 Approximate groundwater flow direction and gradient (ft/ft)
68 Groundwater elevation contour (ft)
NOTE: SITE MAP ADAPTED FROM CAMBRIA ENVIRONMENTAL FIGURES.
SITE DIMENSIONS AND FIGURES FACILITY LOCATIONS NOT VERIFIED.
HARRISON STREET
MACARTHUR BOULEVARD
INTERSTATE 580 (OVERHEAD)
OAKLAND AVENUE
used oil tank
Station Building
former used oil tank
dispenser islands
tank pit
MW-4
65.97
<50
<0.50
3.7
<4.0
MW-3
75.48
<1,000
<10
2,600
<80
MW-2
75.62
<250
<2.5
170
3,100
MW-1
79.81
<50
<0.50
1.1
<4.0
68
70
72
74
76
78
0.05
N
0
40
80
SCALE (ft)
BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California
Project No.: 09-88-643 Date: 11/14/2011
Former Station #11102
100 MacArthur Boulevard Oakland, California
Groundwater Elevation Contour and Analytical Summary Map
August 22, 2011
Drawing
1

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

Former BP Station #11102, 100 MacArthur Blvd., Oakland, CA

Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/ TPHg	DRO/ TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOC			
MW-1																	
11/4/1989	--	90.20	13.21	0.00	76.99	<500	<50	3.4	0.6	<0.3	<0.3	--	<5000	--	--	--	
11/11/1989	--		13.32	0.00	76.88	--	--	--	--	--	--	--	--	--	--	--	
4/3/1990	--		12.46	0.00	77.74	820	--	64	1.9	23	34	--	--	--	--	--	
7/30/1990	--		12.92	0.00	77.28	190	<50	11	<5.0	<5.0	<5.0	--	<5000	--	--	--	
11/20/1990	--		14.08	0.00	76.12	50	79	2.4	<0.3	<0.3	<0.3	--	<5000	--	--	--	
3/1/1991	--		13.61	0.00	76.59	<100	<1000	0.9	<0.3	<0.3	0.3	--	14,000	--	--	--	
8/19/1991	--		15.74	0.00	74.46	370	<50	35	0.73	6.4	5.6	--	<5000	--	--	--	
11/13/1991	--		14.08	0.00	76.12	60	<50	0.68	<0.3	<0.3	<0.3	--	<5000	--	--	--	
2/24/1992	--		12.52	0.00	77.68	140	100	3.9	0.66	1.2	3.8	--	<5000	--	--	--	
5/19/1992	--		11.80	0.00	78.40	4,200	910	440	21	250	37	--	<5000	--	--	--	
6/17/1992	--		12.01	0.00	78.19	4,000	560	350	14	150	17	--	<5000	--	--	--	
7/22/1992	--		12.42	0.00	77.78	4,000	--	<5.0	19	210	61	--	--	--	--	--	
8/14/1992	--		12.75	0.00	77.45	2,400	1,700	330	20	150	47	--	<5000	--	--	--	
11/11/1992	--		13.69	0.00	76.51	260	92	30	3.4	7.6	6.8	--	<5000	--	--	--	
6/7/1993	--		10.93	0.00	79.27	3,400	440	98	11	21	7.6	--	--	--	--	--	
6/7/1993	--		10.93	0.00	79.27	3,700	--	120	12	26	9.5	--	--	--	--	--	c
12/2/1993	--		12.72	0.00	77.48	1,100	120	8.3	3.6	0.6	1.5	--	<5000	--	--	--	
6/22/1994	--		11.81	0.00	78.39	2,100	--	30	3.2	2	15	2,000	--	--	--	--	c, d
6/22/1994	--		11.81	0.00	78.39	2,100	<50	32	3.8	2.2	17	4,000	<5000	--	3.2	--	d
1/10/1995	--		10.97	0.00	79.23	<500	--	120	<5	5	<10	--	--	--	--	--	c
1/10/1995	--		10.97	0.00	79.23	<500	420	120	<5	<5	<10	--	--	--	3.9	--	
6/21/1995	--		9.38	0.00	80.82	3,600	--	<13	<5.0	<5.0	<10	--	--	--	--	--	c, e
6/21/1995	--		9.38	0.00	80.82	4,700	1,300	16	<5.0	<5.0	<10	--	2,900	0.6	6.7	--	
12/27/1995	--		11.55	0.00	78.65	430	2,100	<2.5	<2.5	<2.5	<5.0	1,200	640	--	6.3	--	
6/13/1996	--		9.28	0.00	80.92	3,200	920	51	<12	<12	<12	4,000	2,000	--	6.3	--	
12/4/1996	--		11.91	0.00	78.29	1,400	280	6.2	<5	<5	<5	2,600	2,000	6	6.7	--	f
6/10/1997	--		8.97	0.00	81.23	7,700	--	14	<25	<25	<25	13,000	--	--	--	--	c
6/10/1997	--		8.97	0.00	81.23	7,900	1,700	12	<10	<10	<10	15,000	<5	--	6	--	
12/12/1997	--		11.37	0.00	78.83	440	760	8.8	<1.0	2.6	9.4	6,700	1,200	--	5.5	--	
6/18/1998	--		8.02	0.00	82.18	7,500	2,900	<2.5	<5.0	<5.0	<5.0	5,600	<5	--	4.9	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

Former BP Station #11102, 100 MacArthur Blvd., Oakland, CA

Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/ TPHg	DRO/ TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOC			
MW-1 Cont.																	
3/9/1999	--	90.20	9.80	0.00	80.40	32,000	--	100	16	72	110	49,000	--	--	--	--	
9/28/1999	--		10.78	0.00	79.42	1,000	--	<5.0	<5.0	<5.0	<5.0	730	--	<1.0	--	--	
10/14/1999	--		10.84	0.00	79.36	--	660	--	--	--	--	--	--	--	--	--	
3/27/2000	--		9.83	0.00	80.37	4,300	--	160	19	37	43	28,000	--	--	--	--	
9/28/2000	--		11.33	0.00	78.87	2,700	--	10	2.6	1.1	2.7	28,000	--	--	--	--	
3/8/2001	--		10.96	0.00	79.24	8,200	--	23.5	6.09	5.23	8.97	11,600	--	--	--	--	
9/21/2001	--		12.07	0.00	78.13	6,000	--	37.9	<0.5	<0.5	<1.5	7,370	--	--	--	--	
2/28/2002	--		10.48	0.00	79.72	6,400	--	60.8	<5.0	6.43	<10	7,750	--	--	--	--	
9/6/2002	--		11.20	0.00	79.00	1,400	--	<5.0	<5.0	<5.0	<5.0	6,000	--	--	--	--	
2/19/2003	--		11.29	0.00	78.91	<10000	--	<100	110	<100	<100	4,500	--	--	--	--	h
7/14/2003	--		11.18	0.00	79.02	710	--	11	<10	<10	<10	940	--	--	--	--	
01/14/2004	--		11.74	0.00	78.46	<500	--	<5.0	<5.0	<5.0	<5.0	220			--	6.6	
04/23/2004	P		11.95	0.00	78.25	470	--	3.4	<2.5	<2.5	<2.5	150			--	6.7	l
07/01/2004	P		11.52	0.00	78.68	360	--	<2.5	<2.5	<2.5	<2.5	96			--	6.0	
10/28/2004	P		12.56	0.00	77.64	390	--	0.94	<0.50	<0.50	<0.50	43			--	6.2	
01/10/2005	P		11.85	0.00	78.35	490	--	17	<2.5	5.8	5.4	85			--	7.6	
04/13/2005	P		10.00	0.00	80.20	1,000	--	27	<2.5	<2.5	25	48			--	6.6	
07/11/2005	P		9.27	0.00	80.93	180	--	<0.50	<0.50	<0.50	<0.50	36			--	7.7	
10/17/2005	P		10.96	0.00	79.24	140	--	<0.50	<0.50	<0.50	<0.50	20			--	8.0	
01/17/2006	P		10.81	0.00	79.39	120	--	0.64	<0.50	<0.50	0.56	38			--	6.5	
04/21/2006	P		9.28	0.00	80.92	410	--	1.4	1.0	<0.50	<0.50	17			--	6.5	m
7/17/2006	--		9.25	0.00	80.95	<50	--	<0.50	<0.50	<0.50	<0.50	5.5	--	--	--	7.7	
7/26/2006	--		8.57	0.00	81.63	<50	--	<0.50	<0.50	<0.50	<0.50	4.4	--	--	--	6.6	
10/31/2006	P		9.80	0.00	80.40	<50	--	<0.50	<0.50	<0.50	<0.50	2.8	--	--	2.81	6.99	
1/8/2007	P		10.36	0.00	79.84	<50	--	2.2	<0.50	<0.50	<0.50	6.2	--	--	2.51	6.97	
4/10/2007	P		10.65	0.00	79.55	160	--	1.4	<0.50	<0.50	<0.50	9.0	--	--	1.75	7.00	
7/10/2007	P		10.52	0.00	79.68	120	160	<0.50	<0.50	<0.50	<0.50	4.9	--	--	2.01	6.60	p
10/24/2007	P		11.23	0.00	78.97	100	--	<0.50	<0.50	<0.50	<0.50	4.9	--	--	1.89	6.57	
1/22/2008	P		11.22	0.00	78.98	240	--	<0.50	<0.50	0.83	1.7	7.2	--	--	3.18	6.49	
4/15/2008	P		10.26	0.00	79.94	240	--	<0.50	<0.50	<0.50	0.73	5.5	--	--	3.32	6.45	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

Former BP Station #11102, 100 MacArthur Blvd., Oakland, CA

Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/ TPHg	DRO/ TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOC			
MW-1 Cont.																	
7/8/2008	P	90.20	11.10	0.00	79.10	78	--	<0.50	<0.50	<0.50	<0.50	5.8	--	--	1.65	6.78	
11/19/2008	P		12.51	0.00	77.69	150	--	<0.50	<0.50	<0.50	<0.50	3.4	--	--	1.59	6.84	
2/10/2009	P		12.71	0.00	77.49	<50	--	<0.50	<0.50	<0.50	<0.50	5.3	--	--	1.63	7.00	
5/7/2009	P		10.90	0.00	79.30	<50	--	1.6	<0.50	<0.50	<0.50	13	--	--	1.41	6.82	
9/3/2009	P		11.91	0.00	78.29	120	--	<0.50	<0.50	<0.50	0.89	3.8	--	--	1.45	6.82	
10/29/2009	P		12.54	0.00	77.66	<50	--	<0.50	<0.50	<0.50	<1.0	22	--	--	1.53	6.73	
2/26/2010	P		10.61	0.00	79.59	<50	--	<0.50	<0.50	<0.50	<1.0	8.1	--	--	0.75	6.55	
8/16/2010	P		10.12	0.00	80.08	<50	--	<0.50	<0.50	<0.50	<1.0	8.1	--	--	1.27	6.57	
11/12/2010	--		10.53	0.00	79.67	--	--	--	--	--	--	--	--	--	--	--	
2/3/2011	P		11.88	0.00	78.32	<50	--	0.50	<0.50	<0.50	<1.0	14	--	--	1.00	6.51	
6/23/2011	--		9.78	0.00	80.42	--	--	--	--	--	--	--	--	--	--	--	
8/22/2011	**P**		**10.39**	**0.00**	**79.81**	**<50**	**--**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**1.1**	**--**	**--**	**0.60**	**6.77**	
MW-2																	
11/4/1989	--	87.91	15.84	0.00	72.07	<500	--	6.5	<0.3	<0.3	<0.3	--	--	--	--	--	
11/11/1989	--		14.75	0.00	73.16	--	--	--	--	--	--	--	--	--	--	--	
4/3/1990	--		15.25	0.00	72.66	<500	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	
7/30/1990	--		15.59	0.00	72.32	61	--	6.5	<0.5	<0.5	<0.5	--	--	--	--	--	
11/20/1990	--		17.81	0.00	70.10	<50	--	0.3	<0.3	<0.3	<0.3	--	--	--	--	--	
3/1/1991	--		17.11	0.00	70.80	<100	--	0.4	<0.3	<0.3	<0.3	--	--	--	--	--	
8/19/1991	--		17.97	0.00	69.94	<30	--	<0.3	<0.3	<0.3	<0.3	--	--	--	--	--	
11/13/1991	--		16.76	0.00	71.15	38	--	0.32	<0.3	<0.3	<0.3	--	--	--	--	--	
2/24/1992	--		15.07	0.00	72.84	<50	--	<0.5	<0.5	<0.5	0.58	--	--	--	--	--	
5/19/1992	--		14.70	0.00	73.21	<50	--	0.55	<0.5	<0.5	<0.5	--	--	--	--	--	
7/22/1992	--		15.60	0.00	72.31	90	--	1.3	0.6	0.9	1.9	--	--	--	--	--	
8/14/1992	--		15.88	0.00	72.03	--	--	--	--	--	--	--	--	--	--	--	
11/11/1992	--		16.19	0.00	71.72	65	--	3.2	<0.5	<0.5	1	--	--	--	--	--	c
11/11/1992	--		16.19	0.00	71.72	52	--	2.8	<0.5	<0.5	0.9	--	--	--	--	--	
6/7/1993	--		14.42	0.00	73.49	1,200	--	14	2.8	1.9	1.71	--	--	--	--	--	
12/2/1993	--		14.94	0.00	72.97	2,100	--	32	3.8	2.2	17	3,700	--	--	--	--	c, d
12/2/1993	--		14.94	0.00	72.97	790	--	3.4	0.5	10	<0.5	3,700	--	--	--	--	d

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

Former BP Station #11102, 100 MacArthur Blvd., Oakland, CA

Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/ TPHg	DRO/ TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOC			
MW-2 Cont.																	
6/22/1994	--	87.91	14.25	0.00	73.66	110	--	<0.5	<0.5	<0.5	<0.5	120	--	--	3.9	--	d
1/10/1995	--		13.64	0.00	74.27	<50	--	<0.5	<0.5	0.6	1	--	--	--	4.3	--	
6/21/1995	--		11.66	0.00	76.25	4,700	--	<10	<10	<10	<20	--	--	--	7.8	--	
12/27/1995	--		13.11	0.00	74.80	6,300	--	<25	<25	<25	<50	19,000	--	--	--	--	c
12/27/1995	--		13.11	0.00	74.80	6,100	--	<25	<25	<25	<50	20,000	--	--	6.7	--	
6/13/1996	--		10.86	0.00	77.05	8,700	--	<5	<5	<5	<5	13,000	--	--	--	--	c
6/13/1996	--		10.86	0.00	77.05	8,300	--	<2.5	<2.5	<2.5	<2.5	13,000	--	--	6.5	--	
12/4/1996	--		13.03	0.00	74.88	5,900	--	<2.5	<5	<5	<5	11,000	--	--	--	--	c
12/4/1996	--		13.03	0.00	74.88	5,900	--	<2.5	<5	<5	<5	11,000	--	--	6.3	--	
6/10/1997	--		10.04	0.00	77.87	<50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	5.8	--	
12/12/1997	--		12.44	0.00	75.47	<50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	5.7	--	
6/18/1998	--		8.89	0.00	79.02	<50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	c
6/18/1998	--		8.89	0.00	79.02	50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	5.3	--	
3/9/1999	--		10.20	0.00	77.71	15,000	--	<5.0	<5.0	<5.0	<5.0	23,000	--	--	--	--	
9/28/1999	--		11.81	0.00	76.10	36,000	--	<5.0	12	7	26	35,000	--	<5.0	--	--	
10/14/1999	--		10.27	0.00	77.64	--	100	--	--	--	--	--	--	--	--	--	
3/27/2000	--		9.98	0.00	77.93	1,300	--	<0.5	<0.5	0.51	<0.5	5,800	--	--	--	--	
9/28/2000	--		11.40	0.00	76.51	1,600	--	1.8	1.7	0.54	2.2	15,000	--	--	--	--	
3/8/2001	--		11.16	0.00	76.75	20,000	--	<0.5	<0.5	<0.5	<0.5	29,100	--	--	--	--	
9/21/2001	--		11.65	0.00	76.26	5,000	--	<0.5	<0.5	<0.5	<1.5	6,110	--	--	--	--	
2/28/2002	--		9.86	0.00	78.05	3,200	--	35.1	<0.5	<0.5	<1.0	4,620	--	--	--	--	
9/6/2002	--		12.32	0.00	75.59	1,900	--	<10	<10	<10	<10	15,000	--	--	--	--	
2/19/2003	--		11.63	0.00	76.28	45,000	--	<250	<250	<250	<250	32,000	--	--	--	--	h
7/14/2003	--		12.07	0.00	75.84	9,300	--	<500	<500	<500	<500	24,000	--	--	--	--	
01/14/2004	P		11.45	0.00	76.46	<50,000	--	<500	<500	<500	<500	21,000			--	6.9	
04/23/2004	P		11.45	0.00	76.46	5,100	--	<250	<250	<250	<250	22,000			--	6.8	l
07/01/2004	P		12.32	0.00	75.59	<5,000	--	<50	<50	<50	<50	5,200			--	5.6	
10/28/2004	P		13.02	0.00	74.89	8,500	--	<50	<50	<50	<50	6,800			--	6.2	
01/10/2005	P		14.38	0.00	73.53	<25,000	--	<250	<250	<250	<250	7,100			--	7.6	
04/13/2005	P		14.03	0.00	73.88	<5,000	--	<50	<50	<50	<50	5,300			--	6.6	

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Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/ TPHg	DRO/ TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOC			
MW-2 Cont.																	
07/11/2005	P	87.91	11.25	0.00	76.66	<5,000	--	<50	<50	<50	<50	5,300			--	7.5	
10/17/2005	P		12.48	0.00	75.43	<5,000	--	<50	<50	<50	<50	2,500			--	8.2	
01/17/2006	P		10.70	0.00	77.21	<5,000	--	<50	<50	<50	<50	2,200			--	7.0	
04/21/2006	--		--	--	--	--	--	--	--	--	--	--			--	--	n
7/26/2006	--		10.47	0.00	77.44	2,700	--	<50	<50	<50	<50	2,900	--	--	--	6.69	k
10/31/2006	P		12.02	0.00	75.89	2,300	--	<25	<25	<25	<25	2,300	--	--	2.02	6.71	
1/8/2007	P		11.68	0.00	76.23	1500	--	<12	<12	<12	<12	1700	--	--	1.37	6.54	
4/10/2007	P		11.45	0.00	76.46	1,300	--	<50	<50	<50	<50	1,500	--	--	1.60	6.89	k
7/10/2007	P		11.97	0.00	75.94	2,300	120	<25	<25	<25	<25	2,600	--	--	1.82	6.69	k, p
10/24/2007	P		12.91	0.00	75.00	2,800	--	<25	<25	<25	<25	2,800	--	--	1.55	6.77	k
1/22/2008	P		12.00	0.00	75.91	<2,500	--	<25	<25	<25	<25	1,400	--	--	2.08	6.55	
4/15/2008	P		11.77	0.00	76.14	73	--	<2.5	<2.5	<2.5	<2.5	2,400	--	--	3.12	6.72	
7/8/2008	P		12.65	0.00	75.26	93	--	<50	<50	<50	<50	2,800	--	--	1.78	7.05	
11/19/2008	P		13.98	0.00	73.93	130	--	<50	<50	<50	<50	1,900	--	--	1.75	6.72	
2/10/2009	P		13.64	0.00	74.27	<50	--	<50	<50	<50	<50	940	--	--	1.71	7.04	
5/7/2009	P		12.00	0.00	75.91	350	--	<20	<20	<20	<20	1,900	--	--	1.62	6.94	
9/3/2009	P		13.68	0.00	74.23	890	--	<40	<40	<40	<40	1,300	--	--	1.56	7.02	q
10/29/2009	P		13.88	0.00	74.03	530	--	<0.50	<0.50	<0.50	<1.0	690	--	--	1.60	6.7	k
2/26/2010	P		11.65	0.00	76.26	1,100	--	<10	<10	<10	<20	1,100	--	--	0.52	6.64	k
8/16/2010	NP		12.82	0.00	75.09	1,000	--	<10	<10	<10	<20	1,100	--	--	0.70	6.60	
11/12/2010	--		12.98	0.00	74.93	--	--	--	--	--	--	--	--	--	--	--	
2/3/2011	NP		12.38	0.00	75.53	<1,000	--	<10	<10	<10	<20	860	--	--	1.23	6.51	
6/23/2011	--		11.37	0.00	76.54	--	--	--	--	--	--	--	--	--	--	--	
8/22/2011	**P**		**12.29**	**0.00**	**75.62**	**<250**	**--**	**<2.5**	**<2.5**	**<2.5**	**<5.0**	**170**	**--**	**--**	**0.35**	**6.89**	
MW-3																	
11/4/1989	--	87.02	15.40	0.00	71.62	<500	--	<0.3	<0.3	<0.3	<0.3	--	--	--	--	--	
11/11/1989	--		14.10	0.00	72.92	--	--	--	--	--	--	--	--	--	--	--	
4/3/1990	--		13.90	0.00	73.12	<100	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	
7/30/1990	--		13.77	0.00	73.25	<50	--	<0.5	<0.5	<0.5	<0.5	--	<5000	--	--	--	
11/20/1990	--		14.67	0.00	72.35	<50	--	0.3	0.8	0.4	1.5	--	--	--	--	--	

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Former BP Station #11102, 100 MacArthur Blvd., Oakland, CA

Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/ TPHg	DRO/ TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOC			
MW-3 Cont.																	
3/1/1991	--	87.02	15.22	0.00	71.80	<100	--	0.4	<0.3	<0.3	<0.3	--	--	--	--	--	
8/19/1991	--		13.15	0.00	73.87	<30	--	<0.3	<0.3	<0.3	<0.3	--	--	--	--	--	
11/13/1991	--		15.66	0.00	71.36	<30	--	<0.3	<0.3	<0.3	<0.3	--	--	--	--	--	
2/24/1992	--		15.01	0.00	72.01	<50	--	0.65	1.4	0.66	4.4	--	--	--	--	--	
5/19/1992	--		15.52	0.00	71.50	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	
7/22/1992	--		15.63	0.00	71.39	<50	<50	<0.5	<0.5	<0.5	<0.5	--	<5000	--	--	--	
8/14/1992	--		13.57	0.00	73.45	--	--	--	--	--	--	--	--	--	--	--	
11/11/1992	--		14.13	0.00	72.89	<50	--	<0.5	0.7	<0.5	1.3	--	--	--	--	--	
6/7/1993	--		12.13	0.00	74.89	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	
12/2/1993	--		13.29	0.00	73.73	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	
6/22/1994	--		12.78	0.00	74.24	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	2.9	--	
1/10/1995	--		12.01	0.00	75.01	<50	--	<0.5	<0.5	<0.5	<1	--	--	--	3.8	--	
6/21/1995	--		11.57	0.00	75.45	<50	--	<0.50	<0.50	<0.50	<1.0	--	--	--	7.4	--	
12/27/1995	--		13.47	0.00	73.55	<50	--	<0.50	<0.50	<0.50	<1.0	5.7	--	--	7.3	--	
6/13/1996	--		11.22	0.00	75.80	60	--	<0.5	<0.5	<0.5	<0.5	<10	--	--	6.8	--	
12/4/1996	--		13.28	0.00	73.74	<50	--	<0.5	<1	<1	<1	<10	--	--	6.7	--	
6/10/1997	--		10.22	0.00	76.80	<50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	6.1	--	
12/12/1997	--		12.61	0.00	74.41	<50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	5.6	--	
12/12/1997	--		12.61	0.00	74.41	<50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	c
6/18/1998	--		9.07	0.00	77.95	50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	5.3	--	
6/18/1998	--		12.80	0.00	74.22	50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	5.3	--	
6/18/1998	--		9.07	0.00	77.95	--	--	--	--	--	--	--	--	--	--	--	
6/18/1998	--		12.80	0.00	74.22	--	--	--	--	--	--	--	--	--	--	--	
9/28/1999	--		13.76	0.00	73.26	--	--	--	--	--	--	--	--	--	--	--	
3/27/2000	--		13.77	0.00	73.25	<50	--	<0.5	<0.5	<0.5	<0.5	1.6	--	--	--	--	
9/28/2000	--		11.28	0.00	75.74	<50	--	<0.5	7.4	<0.5	1.3	2	--	--	--	--	
3/8/2001	--		11.75	0.00	75.27	<50	--	<0.5	<0.5	<0.5	<0.5	60.4	--	--	--	--	
9/21/2001	--		11.33	0.00	75.69	<50	--	<0.5	<0.5	<0.5	<1.5	8.18	--	--	--	--	
2/28/2002	--		10.86	0.00	76.16	<50	--	<0.5	<0.5	<0.5	<1.0	25.5	--	--	--	--	
9/6/2002	--		12.73	0.00	74.29	<50	--	1.2	<0.5	<0.5	1	16	--	--	--	--	

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Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/ TPHg	DRO/ TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOC			
MW-3 Cont.																	
2/19/2003	--	87.02	11.72	0.00	75.30	<500	--	<5.0	<5.0	<5.0	<5.0	110	--	--	--	--	h
7/14/2003	--		13.76	0.00	73.26	<50	--	<0.50	<0.50	<0.50	0.67	28	--	--	--	--	
01/14/2004	P		14.83	0.00	72.19	550	--	<5.0	<5.0	<5.0	<5.0	380			--	8.1	
04/23/2004	P		13.17	0.00	73.85	<200	--	<25	<25	<25	<25	560			--	6.8	l
07/01/2004	P		15.19	0.00	71.83	<50	--	<0.50	<0.50	<0.50	0.50	48			--	6.4	
10/28/2004	P		15.50	0.00	71.52	<500	--	<5.0	<5.0	<5.0	<5.0	290			--	6.3	
01/10/2005	P		15.00	0.00	72.02	<50	--	<0.50	<0.50	<0.50	<0.50	18			--	7.6	
04/13/2005	P		14.34	0.00	72.68	<50	--	<0.50	<0.50	<0.50	<0.50	9.0			--	7.1	
07/11/2005	P		10.82	0.00	76.20	130	--	<1.0	<1.0	<1.0	<1.0	120			--	7.8	k
10/17/2005	P		11.84	0.00	75.18	<250	--	<2.5	<2.5	<2.5	<2.5	260			--	8.5	
01/17/2006	P		11.59	0.00	75.43	800	--	<5.0	<5.0	<5.0	<5.0	980			--	7.2	
04/21/2006	P		10.00	0.00	77.02	<500	--	<5.0	<5.0	<5.0	<5.0	48			--	6.7	
7/17/2006	P		10.80	0.00	76.22	910	--	<5.0	<5.0	<5.0	<5.0	1,400	--	--	--	7.7	k
7/26/2006	P		9.67	0.00	77.35	810	--	<10	<10	<10	<10	1,300	--	--	--	6.56	
10/31/2006	P		10.85	0.00	76.17	1,600	--	<10	<10	<10	<10	2,300	--	--	2.50	6.84	
1/8/2007	P		12.73	0.00	74.29	520	--	<5.0	<5.0	<5.0	<5.0	760	--	--	3.61	7.12	
4/10/2007	P		11.93	0.00	75.09	630	--	<5.0	<5.0	<5.0	<5.0	750	--	--	2.31	7.15	k
7/10/2007	P		11.30	0.00	75.72	1,800	66	<5.0	<5.0	<5.0	<5.0	2,400	--	--	1.56	6.72	k, p
10/24/2007	P		13.77	0.00	73.25	2,000	--	<25	<25	<25	<25	3,500	--	--	1.62	6.41	k
1/22/2008	P		12.92	0.00	74.10	1,600	--	<12	<12	<12	<12	2,800	--	--	2.17	6.32	k
4/15/2008	P		15.25	0.00	71.77	<50	--	<2.5	<2.5	<2.5	<2.5	960	--	--	3.44	6.71	
7/8/2008	P		12.27	0.00	74.75	<50	--	<50	<50	<50	<50	2,200	--	--	1.52	7.01	
11/19/2008	P		15.27	0.00	71.75	<50	--	<50	<50	<50	<50	2,700	--	--	1.60	6.83	
2/10/2009	P		13.61	0.00	73.41	<50	--	<50	<50	<50	<50	1,800	--	--	1.66	6.98	
5/7/2009	P		11.75	0.00	75.27	140	--	<10	<10	<10	<10	780	--	--	1.28	6.86	
9/3/2009	P		13.47	0.00	73.55	1,100	--	<10	<10	<10	<10	2,400	--	--	1.33	6.87	q
10/29/2009	P		13.04	0.00	73.98	1,000	--	<10	<10	<10	<20	1,500	--	--	0.97	7.09	k
2/26/2010	P		12.44	0.00	74.58	1,500	--	<10	<10	<10	<20	1,500	--	--	0.74	6.69	k
8/16/2010	P		11.43	0.00	75.59	1,900	--	<0.50	<0.50	<0.50	<1.0	2,400	--	--	0.52	6.59	
11/12/2010	--		12.05	0.00	74.97	--	--	--	--	--	--	--	--	--	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

Former BP Station #11102, 100 MacArthur Blvd., Oakland, CA

Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/ TPHg	DRO/ TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOC			
MW-3 Cont.																	
2/3/2011	NP	87.02	12.31	0.00	74.71	<1,000	--	<10	<10	<10	<20	1,500	--	--	1.92	6.68	
6/23/2011	--		11.08	0.00	75.94	--	--	--	--	--	--	--	--	--	--	--	
8/22/2011	**P**		**11.54**	**0.00**	**75.48**	**<1,000**	**--**	**<10**	**<10**	**<10**	**<20**	**2,600**	**--**	**--**	**0.45**	**6.98**	
MW-4																	
11/12/2010	--	NS	--	--	--	<50	--	<0.50	<0.50	<0.50	<1.0	95	--	--	--	--	
2/3/2011	P	78.06	12.09	0.00	65.97	<50	--	<0.50	<0.50	<0.50	<1.0	110	--	--	3.45	6.51	
6/23/2011	P		11.33	0.00	66.73	<50	--	<0.50	<0.50	<0.50	<1.0	36	--	--	1.37	6.87	
8/22/2011	**P**		**12.09**	**0.00**	**65.97**	**<50**	**--**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**3.7**	**--**	**--**	**--**	**6.96**	
QC-2																	
11/11/1992	--	NS	--	--	--	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	g
6/7/1993	--		--	--	--	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	g
12/2/1993	--		--	--	--	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	g
6/22/1994	--		--	--	--	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	g
1/10/1995	--		--	--	--	<50	--	<0.5	<0.5	<0.5	<1	--	--	--	--	--	g
6/21/1995	--		--	--	--	<50	--	<0.50	<0.50	<0.50	<1.0	--	--	--	--	--	g
12/27/1995	--		--	--	--	<50	--	<0.50	<0.50	<0.50	<1.0	<5.0	--	--	--	--	g
6/13/1996	--		--	--	--	<50	--	<0.5	<0.5	<0.5	<0.5	<10	--	--	--	--	g

Symbols & Abbreviations:
--/--- = Not analyzed/applicable/measured/available
< = Not detected at or above specified laboratory reporting limit
DO = Dissolved oxygen
DRO = Diesel range organics
DTW = Depth to water in ft bgs
ft bgs = feet below ground surface
GRO = Gasoline range organics, range C4-C12
GWE = Groundwater elevation measured in ft
HVOC = Halogenated volatile organic compounds
mg/L = Milligrams per liter
MTBE = Methyl tert-butyl ether
NP = Well not purged prior to sampling
P = Well purged prior to sampling
TOC = Top of casing measured in ft
TOG = Total oil and grease
TPH-d = Total petroleum hydrocarbons as diesel
TPH-g = Total petroleum hydrocarbons as gasoline
µg/L = Micrograms per liter
ANA = Anametrix, Inc.
PACE = Pace, Inc.
ATI = Analytical Technologies, Inc.
SAL = Superior Analytical Laboratory
SPL = Southern Petroleum Laboratories
SEQ/SEQM = Sequoia Analytical/Sequoia Analytical - Morgan Hill (Laboratories)
CEL = CalScience Environmental Laboratories, Inc.

Footnotes:
c = Blind duplicate
d = A copy of the documentation for this data is included in Appendix C of Alisto report 10-076-06-002
e = Tetrachloroethene
f = trans-1,2-Dichloroethene
g = Travel blank
h = TPH-g, benzene, toluene, ethylbenzene, and total xylenes (BTEX), and MTBE analyzed by EPA Method 8260B beginning on 1st quarter sampling event (2/19/03)
k = The hydrocarbon result was partly due to individual peaks in the quantification range (GRO)
l = GRO analyzed by EPA Method 8015B
m = Confirmatory analysis for total xylenes was past holding time
n = Well inaccessible
p = Hydrocarbon in req. fuel range, but doesn't resemble req. fuel (DRO)
q = Quantitaion of unknown hydrocarbon(s) in sample based on gasoline (GRO)

Notes:
Beginning in the fourth quarter 2003, the laboratory modified the reported analyte list. TPH-g was changed to GRO. The resulting data may be impacted by the potential of non-TPH-g analytes within the requested fuel range resulting in a higher concentration being reported

Beginning in the second quarter 2004, the carbon range for GRO was changed from C6-C10 to C4-C12

Values for pH and DO were obtained through field measurements

GRO analysis was completed by EPA method 8260B (C4-C12) for samples collected from the time period April 2006 through February 4, 2008. The analysis for GRO was changed to EPA method 8015B (C6-C12) for samples collected from the time period February 5, 2008 through September 30, 2009. GRO analysis was changed to EPA method 8260B (C6-C12) for the time period October 1, 2009 through the present

The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information

Table 2. Summary of Fuel Additives Analytical Data

Former BP Station #11102, 100 MacArthur Blvd., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1									
6/22/1994	--	--	2,000	--	--	--	--	--	
6/22/1994	--	--	4,000	--	--	--	--	--	
12/27/1995	--	--	1,200	--	--	--	--	--	
6/13/1996	--	--	4,000	--	--	--	--	--	
12/4/1996	--	--	2,600	--	--	--	--	--	
6/10/1997	--	--	13,000	--	--	--	--	--	
6/10/1997	--	--	15,000	--	--	--	--	--	
12/12/1997	--	--	6,700	--	--	--	--	--	
6/18/1998	--	--	5,600	--	--	--	--	--	
3/9/1999	--	--	49,000	--	--	--	--	--	
9/28/1999	--	--	730	--	--	--	--	--	
3/27/2000	--	--	28,000	--	--	--	--	--	
9/28/2000	--	--	28,000	--	--	--	--	--	
3/8/2001	--	--	11,600	--	--	--	--	--	
9/21/2001	--	--	7,370	--	--	--	--	--	
2/28/2002	--	--	7,750	--	--	--	--	--	
9/6/2002	--	--	6,000	--	--	--	--	--	
2/19/2003	--	--	4,500	--	--	--	--	--	
7/14/2003	<2000	2,700	940	<20	<20	<20	--	--	
01/14/2004	<1,000	2,500	220	<5.0	<5.0	<5.0	<5.0	<5.0	
04/23/2004	<500	2,500	150	<2.5	<2.5	<2.5	<2.5	<2.5	
07/01/2004	<500	2,000	96	<2.5	<2.5	<2.5	<2.5	<2.5	
10/28/2004	<5.0	1,500	43	<0.50	<0.50	0.58	<0.50	<0.50	
01/10/2005	<500	1,900	85	<2.5	<2.5	<2.5	<2.5	<2.5	
04/13/2005	<500	1,400	48	<2.5	<2.5	<2.5	<2.5	<2.5	
07/11/2005	<100	550	36	<0.50	<0.50	<0.50	<0.50	<0.50	
10/17/2005	<100	450	20	<0.50	<0.50	<0.50	<0.50	<0.50	a
01/17/2006	<300	260	38	<0.50	<0.50	0.54	<0.50	<0.50	
04/21/2006	<300	320	17	<0.50	<0.50	<0.50	<0.50	<0.50	
7/17/2006	<300	32	5.5	<0.50	<0.50	<0.50	<0.50	<0.50	
7/26/2006	<300	22	4.4	<0.50	<0.50	<0.50	<0.50	<0.50	
10/31/2006	<300	<20	2.8	<0.50	<0.50	<0.50	<0.50	<0.50	a

Table 2. Summary of Fuel Additives Analytical Data

Former BP Station #11102, 100 MacArthur Blvd., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-1 Cont.									
1/8/2007	<300	110	6.2	<0.50	<0.50	<0.50	<0.50	<0.50	
4/10/2007	<300	210	9.0	<0.50	<0.50	<0.50	<0.50	<0.50	
7/10/2007	<300	110	4.9	<0.50	<0.50	<0.50	<0.50	<0.50	
10/24/2007	<300	94	4.9	<0.50	<0.50	<0.50	<0.50	<0.50	
1/22/2008	<300	110	7.2	<0.50	<0.50	<0.50	<0.50	<0.50	
4/15/2008	<300	84	5.5	<0.50	<0.50	<0.50	<0.50	<0.50	
7/8/2008	<300	64	5.8	<0.50	<0.50	<0.50	<0.50	<0.50	
11/19/2008	<300	110	3.4	<0.50	<0.50	<0.50	<0.50	<0.50	
2/10/2009	<300	110	5.3	<0.50	<0.50	<0.50	<0.50	<0.50	
5/7/2009	<300	17	13	<0.50	<0.50	<0.50	<0.50	<0.50	
9/3/2009	<300	260	3.8	<0.50	<0.50	<0.50	<0.50	<0.50	
10/29/2009	<100	210	22	<0.50	<0.50	<0.50	<0.50	<0.50	
2/26/2010	<100	240	8.1	<0.50	<0.50	<0.50	<0.50	<0.50	
8/16/2010	120	35	8.1	<0.50	<0.50	<0.50	<0.50	<0.50	
2/3/2011	<250	36	14	<0.50	<0.50	<0.50	<0.50	<0.50	
8/22/2011	**<250**	**<4.0**	**1.1**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
MW-2									
12/2/1993	--	--	3,700	--	--	--	--	--	
12/2/1993	--	--	3,700	--	--	--	--	--	
6/22/1994	--	--	120	--	--	--	--	--	
12/27/1995	--	--	19,000	--	--	--	--	--	
12/27/1995	--	--	20,000	--	--	--	--	--	
6/13/1996	--	--	13,000	--	--	--	--	--	
6/13/1996	--	--	13,000	--	--	--	--	--	
12/4/1996	--	--	11,000	--	--	--	--	--	
12/4/1996	--	--	11,000	--	--	--	--	--	
6/10/1997	--	--	<10	--	--	--	--	--	
12/12/1997	--	--	<10	--	--	--	--	--	
6/18/1998	--	--	<10	--	--	--	--	--	
6/18/1998	--	--	<10	--	--	--	--	--	
3/9/1999	--	--	23,000	--	--	--	--	--	

Table 2. Summary of Fuel Additives Analytical Data

Former BP Station #11102, 100 MacArthur Blvd., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-2 Cont.									
9/28/1999	--	--	35,000	--	--	--	--	--	
3/27/2000	--	--	5,800	--	--	--	--	--	
9/28/2000	--	--	15,000	--	--	--	--	--	
3/8/2001	--	--	29,100	--	--	--	--	--	
9/21/2001	--	--	6,110	--	--	--	--	--	
2/28/2002	--	--	4,620	--	--	--	--	--	
9/6/2002	--	--	15,000	--	--	--	--	--	
2/19/2003	--	--	32,000	--	--	--	--	--	
7/14/2003	<100000	<20000	24,000	<1000	<1000	<1000	--	--	
01/14/2004	<100,000	<20,000	21,000	<500	<500	<500	<500	<500	
04/23/2004	<50,000	11,000	22,000	<250	<250	420	<250	<250	
07/01/2004	<10,000	2,900	5,200	<50	<50	110	<50	<50	
10/28/2004	<5.0	6,700	6,800	<50	<50	120	<50	<50	
01/10/2005	<50,000	<10,000	7,100	<250	<250	<250	<250	<250	
04/13/2005	<10,000	5,300	5,300	<50	<50	95	<50	<50	
07/11/2005	<10,000	9,000	5,300	<50	<50	99	<50	<50	
10/17/2005	<10,000	5,200	2,500	<50	<50	<50	<50	<50	a
01/17/2006	<30,000	8,400	2,200	<50	<50	<50	<50	<50	
04/21/2006	--	--	--	--	--	--	--	--	Well inaccessible
7/26/2006	<30,000	4,500	2,900	<50	<50	<50	<50	<50	
10/31/2006	<15,000	9,300	2,300	<25	<25	41	<25	<25	a
1/8/2007	<7,500	7700	1700	<12	<12	38	<12	<12	
4/10/2007	<30,000	6,400	1,500	<50	<50	<50	<50	<50	
7/10/2007	<15,000	8,700	2,600	<25	<25	42	<25	<25	
10/24/2007	<15,000	9,500	2,800	<25	<25	52	<25	<25	
1/22/2008	<15,000	6,000	1,400	<25	<25	<25	<25	<25	
4/15/2008	<1,500	6,800	2,400	<2.5	<2.5	30	2.8	<2.5	
7/8/2008	<30,000	7,600	2,800	<50	<50	<50	<50	<50	
11/19/2008	<30,000	7,100	1,900	<50	<50	<50	<50	<50	
2/10/2009	<30,000	2,700	940	<50	<50	<50	<50	<50	
5/7/2009	<12,000	3,900	1,900	<20	<20	30	<20	<20	
9/3/2009	<24,000	7,500	1,300	<40	<40	<40	<40	<40	

Table 2. Summary of Fuel Additives Analytical Data

Former BP Station #11102, 100 MacArthur Blvd., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-2 Cont.									
10/29/2009	<100	3,900	690	<0.50	<0.50	12	2.4	<0.50	
2/26/2010	<2,000	4,100	1,100	<10	<10	13	<10	<10	
8/16/2010	<2,000	4,800	1,100	<10	<10	14	<10	<10	
2/3/2011	<250	3,200	860	<10	<10	<10	<10	<10	
8/22/2011	**<1,300**	**3,100**	**170**	**<2.5**	**<2.5**	**3.9**	**<2.5**	**<2.5**	
MW-3									
12/27/1995	--	--	5.7	--	--	--	--	--	
6/13/1996	--	--	<10	--	--	--	--	--	
12/4/1996	--	--	<10	--	--	--	--	--	
6/10/1997	--	--	<10	--	--	--	--	--	
12/12/1997	--	--	<10	--	--	--	--	--	
12/12/1997	--	--	<10	--	--	--	--	--	
6/18/1998	--	--	<10	--	--	--	--	--	
6/18/1998	--	--	<10	--	--	--	--	--	
3/27/2000	--	--	1.6	--	--	--	--	--	
9/28/2000	--	--	2	--	--	--	--	--	
3/8/2001	--	--	60.4	--	--	--	--	--	
9/21/2001	--	--	8.18	--	--	--	--	--	
2/28/2002	--	--	25.5	--	--	--	--	--	
9/6/2002	--	--	16	--	--	--	--	--	
2/19/2003	--	--	110	--	--	--	--	--	
7/14/2003	<100	<20	28	<1.0	<1.0	<1.0	--	--	
01/14/2004	<1,000	<200	380	<5.0	<5.0	<5.0	<5.0	<5.0	
04/23/2004	<5,000	<1,000	560	<25	<25	<25	<25	<25	
07/01/2004	<100	<20	48	<0.50	<0.50	0.52	<0.50	<0.50	
10/28/2004	<5.0	<200	290	<5.0	<5.0	<5.0	<5.0	<5.0	
01/10/2005	<100	<20	18	<0.50	<0.50	<0.50	<0.50	<0.50	
04/13/2005	<100	<20	9.0	<0.50	<0.50	<0.50	<0.50	<0.50	
07/11/2005	<200	<40	120	<1.0	<1.0	1.4	<1.0	<1.0	a
10/17/2005	<500	<100	260	<2.5	<2.5	4.2	<2.5	<2.5	a
01/17/2006	<3,000	200	980	<5.0	<5.0	13	<5.0	<5.0	

Table 2. Summary of Fuel Additives Analytical Data

Former BP Station #11102, 100 MacArthur Blvd., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
MW-3 Cont.									
04/21/2006	<3,000	<200	48	<5.0	<5.0	<5.0	<5.0	<5.0	
7/17/2006	<3,000	<200	1,400	<5.0	<5.0	15	<5.0	<5.0	
7/26/2006	<6,000	<400	1,300	<10	<10	18	<10	<10	
10/31/2006	<6,000	<400	2,300	<10	<10	39	<10	<10	a
1/8/2007	<3000	<200	760	<5.0	<5.0	9.7	<5.0	<5.0	
4/10/2007	<3,000	<200	750	<5.0	<5.0	<5.0	<5.0	<5.0	
7/10/2007	<3,000	<200	2,400	<5.0	<5.0	39	<5.0	--	
10/24/2007	<15,000	<1,000	3,500	<25	<25	58	<25	<25	
1/22/2008	<7,500	<500	2,800	<12	<12	34	<12	<12	
4/15/2008	<1,500	<50	960	<2.5	<2.5	9.2	<2.5	<2.5	
7/8/2008	<30,000	<1,000	2,200	<50	<50	<50	<50	<50	
11/19/2008	<30,000	<1,000	2,700	<50	<50	<50	<50	<50	
2/10/2009	<30,000	<1,000	1,800	<50	<50	<50	<50	<50	
5/7/2009	<6,000	<200	780	<10	<10	11	<10	<10	
9/3/2009	<6,000	<200	2,400	<10	<10	39	<10	<10	
10/29/2009	<2,000	110	1,500	<10	<10	17	<10	<10	
2/26/2010	<2,000	<80	1,500	<10	<10	16	<10	<10	
8/16/2010	<100	20	2,400	<0.50	0.77	32	2.3	<0.50	
2/3/2011	<50,000	150	1,500	<10	<10	12	<10	<10	
8/22/2011	**<5,000**	**<80**	**2,600**	**<10**	**<10**	**28**	**<10**	**<10**	
MW-4									
11/12/2010	<250	6.9	95	<0.50	<0.50	0.75	<0.50	<0.50	
2/3/2011	<250	12	110	<0.50	<0.50	0.67	<0.50	<0.50	
6/23/2011	<250	<4.0	36	<0.50	<0.50	<0.50	<0.50	<0.50	
8/22/2011	**<250**	**<4.0**	**3.7**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
QC-2									
12/27/1995	--	--	<5.0	--	--	--	--	--	
6/13/1996	--	--	<10	--	--	--	--	--	

Symbols & Abbreviations:
-- = Not analyzed/applicable/measured/available
< = Not detected at or above specified laboratory reporting limit
1,2-DCA = 1,2-Dichloroethane
DIPE = Di-isopropyl ether
EDB = 1,2-Dibromoethane
ETBE = Ethyl tert-butyl ether
MTBE = Methyl tert-butyl ether
TAME = tert-Amyl methyl ether
TBA = tert-Butyl alcohol
µg/L = Micrograms per Liter

Footnotes:
a = The calibration verification for ethanol was within the method limits but outside the contract limits

Notes:
All volatile organic compounds were analyzed using EPA Method 8260B

The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information

Table 3. Historical Groundwater Gradient - Direction and Magnitude

Former BP Station #11102, 100 MacArthur Blvd., Oakland, CA

Date Measured	Approximate Gradient Direction	Approximate Gradient Magnitude (ft/ft)
4/21/2006	--	--
7/17/2006	Southwest	0.05
10/31/2006	Southwest	0.04
1/8/2007	West	0.06
4/10/2007	West	0.05
7/10/2007	Southwest	0.04
10/24/2007	West-Southwest	0.06
1/22/2008	West	0.05
4/15/2008	West-Southwest	0.09
7/8/2008	West-Southwest	0.05
11/19/2008	West	0.06
2/10/2009	West	0.04
5/7/2009	West	0.05
9/3/2009	West	0.05
10/29/2009	West	0.04
2/26/2010	West	0.05
8/16/2010	West-Southwest	0.05
2/3/2011	West-Southwest	0.04
6/23/2011	West-Southwest	0.05
8/22/2011	**West-Southwest**	**0.05**

Notes:
The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information

APPENDIX A

FIELD METHODS

BROADBENT & ASSOCIATES INC. FIELD PROCEDURES

A.1 QUALITY ASSURANCE/QUALITY CONTROL FIELD PROTOCOLS

Field protocols have been implemented to enhance the accuracy and reliability of data collection, ground-water sample collection, transportation and laboratory analysis. Discussion of these protocols is provided below.

A.1.1 Water Level & Free-Product Measurement

Prior to ground-water sample collection from each monitoring well, the presence of separate-phase hydrocarbons (SPH or free product, FP) and depth to ground water shall be measured. Depth to ground water will be measured with a standard water level indicator that has been decontaminated prior to its use in accordance with procedures discussed below. Depth to groundwater will be gauged from a saw cut notch at the top of the well casing on each well head. Where FP is suspected, the initial gauging will be done with an oil-water interface probe. Once depth to water has been measured, the first retrieval of a new disposable bailer will be scrutinized for the presence of SPH/FP.

A.1.2 Monitoring Well Purging

Subsequent to measuring depth to ground water and prior to the collection of ground-water samples, purging of standing water within the monitoring will be performed if called for. Consistent with the American Society for Testing and Materials (ASTM) Standard D6452-99, Section 7.1, the well will be purged of approximately three wetted-casing volumes of water, or until the well is dewatered, or until monitored field parameters indicate stabilization. The well will be purged using a pre-cleaned disposable bailer or submersible pump and disposable plastic tubing dedicated to each individual well. The well will be purged at a low flow rate to minimize the possibility of purging the well dry. So that the sample collected is representative of formation water, several field parameters will be monitored during the purging process. The sample will not be collected until these parameters (i.e. temperature, pH, and conductivity) have stabilized to within 10% of the previously measured value. If a well is purged dry, the sample should not be collected until the well has recovered to a minimum 50% of its initial volume.

A.1.3 Ground-Water Sample Collection

Once the wells are satisfactorily purged, water samples will be collected from each well. Water samples for organic analyses will be collected using a pre-cleaned, new, disposable bailer and transferred into the appropriate, new, laboratory-prepared containers such that no head space or air bubbles are present in the sample container (if appropriate to the analysis). The samples will be properly labeled (i.e. sample identification, sampler initials, date/time of collection, site location, requested analyses), placed in an ice chest with bagged ice or ice substitute, and delivered to the contracted analytical laboratory.

A.1.4 Surface Water Sample Collection

Unless specified otherwise, surface water samples will be collected from mid-depth in the central area of the associated surface water body. Water samples will be collected into appropriate, new, laboratory-prepared containers by dipping the container into the surface water unless the container has a preservative present. If a sample preservative is present, a new, cleaned non-preserved surrogate container will be used to obtain the sample which will then be directly transferred into a new, laboratory-provided, preserved container. Samples will be properly labeled and transported as described above.

A.1.5 Decontamination Protocol

Prior to use in each well, re-usable ground-water sampling equipment (e.g., water level indicator, oil-interface probe, purge pump, etc.) will be decontaminated. Decontamination protocol will include thoroughly cleaning with a solution of Liquinox, rinsing with clean water, and final rinsing with control water (potable water of known quality, distilled, or de-ionized water). Pre-cleaned new disposable bailers and disposable plastic tubing will be dedicated to each individual well.

A.1.6 Chain of Custody Procedures

Sample identification documents will be carefully prepared so identification and chain of custody can be maintained and sample disposition can be controlled. The sample identification documents include Chain-of-Custody (COC) records and Daily Field Report forms. Chain of custody procedures are outlined below.

Field Custody Procedures

The field sampler is individually responsible for the care and custody of the samples collected until they are properly transferred.

Samples will have unique labels. The information on these labels will correspond to the COC which shows the identification of individual samples and the contents of the shipping container. The original COC will accompany the shipment and a copy will be retained by the field sampler.

Transfer of Custody and Shipment

A COC will accompany samples during transfer and shipment. When transferring samples, the individual relinquishing and the individual receiving the samples will each sign, date, and note the time on the COC. This documents the sample custody transfer.

Samples will be packaged properly for shipment and dispatched to the appropriate laboratory for analysis, with a separate COC accompanying each shipment. Shipments will be accompanied by the original COC. Samples will be delivered by BAI personnel to the laboratory, or shipped by responsible courier. When a shipping courier is utilized, the sample shipment number will be identified on the COC.

A.1.7 Field Records

In addition to sample identification numbers and COC records, Daily Field Report records will be maintained by field staff to provide daily records of significant events, observations, and measurements during field investigations. These documents will contain observed information such as: the personnel present, site conditions, sampling procedures, measurement procedures, calibration records, equipment used, supplies used, etc. Field measurements will be recorded on the appropriate forms. Entries on the data forms will be signed and dated. The data forms will be kept as permanent file records.

APPENDIX B

FIELD DATA SHEETS

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

FIELD DATA REPORT

DATE: 8-22-11
PERSONNEL: JR
WEATHER: FOGGY/SUNNY

PROJECT NO.: 09-88-643
COMMENTS:

Equip:	Geosquirt	Tubing	Bailers	DO	wli	Ec/pH

Well ID	Time	MEASURING POINT	DTW (FT)	PRODUCT THICKNESS	pH	Cond. (X100)	Temp. (C/F)	DO (mg/l)	Redox (mV)	Iron (mg/l)	Alk. (mg/l)	WELL HEAD CONDITION: VAULT, BOLTS, CAP, LOCK, ETC
		TOC										
MW-1	1026		10.39									
MW-2	1058		12.29									
MW-3	1133		11.54									
MW-4	1202	⊗	12.09									

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

Micropurging Groundwater Sampling Data Sheet

Well I.D.: MW-1
Project Name/Location: 11102 Project #: 09-88-643
Sampler's Name: JR Date: 8-22-11
Purging Equipment: Geopump
Sampling Equipment: Geopump
Casing Type: PVC

Casing Diameter:		4	inch
Total Well Depth:		32.00	feet
Depth to Water:	-	10.39	feet
Water Column Thickness:	=	21.61	feet
Unit Casing Volume*:	x	2.47	Liter / foot
Casing Water Volume:	=	53.38	Liters
Top of Screen		12	feet
Intake Depth**:		12.39	feet

***UNIT CASING VOLUMES**
2" = 0.61 L/lin ft.
3" = 1.39 L/lin ft.
4" = 2.47 L/lin ft.
6" = 5.56 L/lin ft.

**One foot below water level or top of screen, whichever is lower

Free product measurement (if present): _____

Purged (L)	Time (24:00)	Flow (L/min)	DO (mg/L)	ORP (mV)	Conductance (µS)	Temperature °C (~~Fahrenheit~~)	pH	Water Level (feet)
0	1035	X	1.40	63	519	19.4	6.78	10.39
0.5	1038	0.17	1.03	72	514	19.5	6.79	10.45
1.0	1041	0.17	0.63	77	519	19.6	6.77	10.51
1.5	1044	0.17	0.60	78	518	19.6	6.77	10.54

Total Water Volume Purged: 1.5 Liters
Depth to Water at Sample Collection: _____ feet
Sample Collection Time: 1050 Purged Dry? (Y / ~~N~~)

Comments:

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

Micropurging Groundwater Sampling Data Sheet

Well I.D.: MW-2
Project Name/Location: 11102 Project #: 09-88-643
Sampler's Name: JR Date: 8-22-11
Purging Equipment: Geopump
Sampling Equipment: Geopump
Casing Type: PVC

Casing Diameter:	4	inch
Total Well Depth:	32.39	feet
Depth to Water:	- 12.29	feet
Water Column Thickness:	= 20.10	feet
Unit Casing Volume*:	x 2.47	Liter / foot
Casing Water Volume:	= 49.65	Liters
Top of Screen	12	feet
Intake Depth**:	14.29	feet

***UNIT CASING VOLUMES**
2" = 0.61 L/lin ft.
3" = 1.39 L/lin ft.
4" = 2.47 L/lin ft.
6" = 5.56 L/lin ft.

**One foot below water level or top of screen, whichever is lower

Free product measurement (if present):

Purged (L)	Time (24:00)	Flow (L/min)	DO (mg/L)	ORP (mV)	Conductance (µS)	Temperature °C ~~(Fahrenheit)~~	pH	Water Level (feet)
0	1106	X	5.78	70	445	20.6	6.97	12.29
0.5	1108	0.25	0.57	47	444	20.8	6.96	12.58
1.0	1110	0.25	0.51	29	461	20.8	6.90	12.59
1.5	1112	0.25	0.45	16	459	20.8	6.90	12.63
2.0	1114	0.25	0.36	3	460	20.9	6.90	12.73
2.5	1116	0.25	0.35	-1	459	20.9	6.89	12.81

Total Water Volume Purged: 2.5 Liters
Depth to Water at Sample Collection: feet
Sample Collection Time: 1119 Purged Dry? (Y (N)

Comments:

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

Micropurging Groundwater Sampling Data Sheet

Well I.D.: MW-3
Project Name/Location: 11102 Project #: 09-58-643
Sampler's Name: JR Date: 8-22-11
Purging Equipment: Geopump
Sampling Equipment: Geopump
Casing Type: PVC

Casing Diameter:		4	inch
Total Well Depth:		32.45	feet
Depth to Water:	-	11.54	feet
Water Column Thickness:	=	20.91	feet
Unit Casing Volume*:	x	2.47	Liter / foot
Casing Water Volume:	=	51.65	Liters
Top of Screen		12	feet
Intake Depth**:		13.54	feet

***UNIT CASING VOLUMES**
2" = 0.61 L/lin ft.
3" = 1.39 L/lin ft.
4" = 2.47 L/lin ft.
6" = 5.56 L/lin ft.

**One foot below water level or top of screen, whichever is lower

Free product measurement (if present): _____

Purged (L)	Time (24:00)	Flow (L/min)	DO (mg/L)	ORP (mV)	Conductance (µS)	Temperature °C (~~Fahrenheit~~)	pH	Water Level (feet)
0	1139	X	1.05	30	545	21.6	7.13	11.54
0.5	1141	0.25	0.69	32	548	21.7	7.01	11.80
1.0	1143	0.25	0.52	37	546	21.7	7.00	11.92
1.5	1145	0.25	0.44	36	549	21.7	6.98	12.03
2.0	1147	0.25	0.45	38	547	21.8	6.98	12.11

Total Water Volume Purged: 2.0 Liters
Depth to Water at Sample Collection: _____ feet
Sample Collection Time: 1158
Purged Dry? (Y (N)

Comments:

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL

Micropurging Groundwater Sampling Data Sheet

Well I.D.: MW-4
Project Name/Location: 1102 Project #: 09-88-643
Sampler's Name: JR Date: 8-22-11
Purging Equipment: Geopump
Sampling Equipment: Geopump
Casing Type: PVC

Casing Diameter:		2	inch
Total Well Depth:		20.00	feet
Depth to Water:	-	12.09	feet
Water Column Thickness:	=	7.91	feet
Unit Casing Volume*:	x	0.161	Liter / foot
Casing Water Volume:	=	4.83	Liters
Top of Screen		16	feet
Intake Depth**:		14.09	feet

***UNIT CASING VOLUMES**
2" = 0.61 L/lin ft.
3" = 1.39 L/lin ft.
4" = 2.47 L/lin ft.
6" = 5.56 L/lin ft.

**One foot below water level or top of screen, whichever is lower

Free product measurement (if present):

Purged (L)	Time (24:00)	Flow (L/min)	DO (mg/L)	ORP (mV)	Conductance (µS)	Temperature °C ~~(Fahrenheit)~~	pH	Water Level (feet)
0	1209	X	77	77	269	16.9	7.00	12.09
0.5	1211	0.25	81	81	270	16.5	6.97	12.49
1.0	1213	0.25	82	82	270	16.3	6.96	12.66
1.5	1215	0.25	82	82	272	16.2	6.96	12.86

Total Water Volume Purged: 1.5 Liters
Depth to Water at Sample Collection: feet
Sample Collection Time: 1220
Purged Dry? (Y / (N))

Comments:

San Francisco
1220 Quarry Lane

Pleasanton, CA 94566
phone 925.484.1919 fax 925.600.3002

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Jason Duda	Site Contact:	Date:	COC No:
Broadbent & Associates	Tel/Fax: (530) 566-1400/ (530) 566-1401	Lab Contact:	Carrier:	____ of ____ COCs
1324 Mangrove Ave Suite 212	**Analysis Turnaround Time**			Job No.
Chico, CA 95926	Calendar (C) or Work Days (W) ____			
(530) 566-1400	TAT if different from Below ____ STD X			
(530) 566-1401	☐ 2 weeks			SDG No.
Project Name: BP 11102	☐ 1 week			
Site: 100 Macarthur Boulevard, Oakland	☐ 2 days			
P O # GP09BPNA.C111	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	GRO by 8015	BTEX/5 FO + EDB by 8260	1,2-DCA and Ethanol by 8260	Sample Specific Notes:
MW-1 (8/22/11)	8-22-11	1050	GRAB	AQ	3		X	X	X	
MW-2 (8/22/11)		1119	GRAB	AQ	3		X	X	X	
MW-3 (8/22/11)		1150	GRAB	AQ	3		X	X	X	
MW-4 (8/22/11)	↓	1220	GRAB	AQ	3		X	X	X	
~~TB-11102-08222011~~										~~ON HOLD~~

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other ____

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ____ *Months*

Special Instructions/QC Requirements & Comments:

5.8°C

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	BA	8/22/11 1404		TestAmerica	8-22-11 1404
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

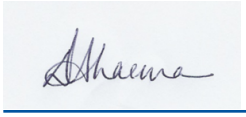
ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica San Francisco
1220 Quarry Lane
Pleasanton, CA 94566
Tel: (925)484-1919

TestAmerica Job ID: 720-37069-1
Client Project/Site: BP #11102, Oakland

For:
ARCADIS U.S., Inc.
100 Montgomery Street
Suite 300
San Francisco, California 94104

Attn: Hollis Phillips



Authorized for release by:
08/26/2011 11:35:30 AM

Dimple Sharma
Project Manager I
dimple.sharma@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit (Dioxin)
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or method detection limit if shown)
PQL	Practical Quantitation Limit
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 720-37069-1

Laboratory: TestAmerica San Francisco

Narrative

Job Narrative
720-37069-1

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS VOA
No analytical or quality issues were noted.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: BP #11102, Oakland

TestAmerica Job ID: 720-37069-1

Client Sample ID: MW-1 (8/22/11) — Lab Sample ID: 720-37069-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
MTBE	1.1		0.50		ug/L	1		8260B/CA_LUFTM	Total/NA

Client Sample ID: MW-2 (8/22/11) — Lab Sample ID: 720-37069-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
MTBE	170		2.5		ug/L	5		8260B/CA_LUFTM	Total/NA
TBA	3100		20		ug/L	5		8260B/CA_LUFTM	Total/NA
TAME	3.9		2.5		ug/L	5		8260B/CA_LUFTM	Total/NA

Client Sample ID: MW-3 (8/22/11) — Lab Sample ID: 720-37069-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
MTBE	2600		10		ug/L	20		8260B/CA_LUFTM	Total/NA
TAME	28		10		ug/L	20		8260B/CA_LUFTM	Total/NA

Client Sample ID: MW-4 (8/22/11) — Lab Sample ID: 720-37069-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
MTBE	3.7		0.50		ug/L	1		8260B/CA_LUFTM	Total/NA

Client: ARCADIS U.S., Inc.
Project/Site: BP #11102, Oakland

TestAmerica Job ID: 720-37069-1

Client Sample ID: MW-1 (8/22/11)
Date Collected: 08/22/11 10:50
Date Received: 08/22/11 14:04

Lab Sample ID: 720-37069-1
Matrix: Water

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MTBE	1.1		0.50		ug/L			08/23/11 02:42	1
Benzene	ND		0.50		ug/L			08/23/11 02:42	1
EDB	ND		0.50		ug/L			08/23/11 02:42	1
1,2-DCA	ND		0.50		ug/L			08/23/11 02:42	1
Ethylbenzene	ND		0.50		ug/L			08/23/11 02:42	1
Toluene	ND		0.50		ug/L			08/23/11 02:42	1
Xylenes, Total	ND		1.0		ug/L			08/23/11 02:42	1
Gasoline Range Organics (GRO) -C6-C12	ND		50		ug/L			08/23/11 02:42	1
TBA	ND		4.0		ug/L			08/23/11 02:42	1
Ethanol	ND		250		ug/L			08/23/11 02:42	1
DIPE	ND		0.50		ug/L			08/23/11 02:42	1
TAME	ND		0.50		ug/L			08/23/11 02:42	1
Ethyl t-butyl ether	ND		0.50		ug/L			08/23/11 02:42	1

Surrogate	*% Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*87*		*67 - 130*		*08/23/11 02:42*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*67 - 130*		*08/23/11 02:42*	*1*
Toluene-d8 (Surr)	*95*		*70 - 130*		*08/23/11 02:42*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: BP #11102, Oakland

TestAmerica Job ID: 720-37069-1

Client Sample ID: MW-2 (8/22/11)
Date Collected: 08/22/11 11:19
Date Received: 08/22/11 14:04

Lab Sample ID: 720-37069-2
Matrix: Water

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MTBE	**170**		2.5		ug/L			08/24/11 16:30	5
Benzene	ND		2.5		ug/L			08/24/11 16:30	5
EDB	ND		2.5		ug/L			08/24/11 16:30	5
1,2-DCA	ND		2.5		ug/L			08/24/11 16:30	5
Ethylbenzene	ND		2.5		ug/L			08/24/11 16:30	5
Toluene	ND		2.5		ug/L			08/24/11 16:30	5
Xylenes, Total	ND		5.0		ug/L			08/24/11 16:30	5
Gasoline Range Organics (GRO) -C6-C12	ND		250		ug/L			08/24/11 16:30	5
TBA	**3100**		20		ug/L			08/24/11 16:30	5
Ethanol	ND		1300		ug/L			08/24/11 16:30	5
DIPE	ND		2.5		ug/L			08/24/11 16:30	5
TAME	**3.9**		2.5		ug/L			08/24/11 16:30	5
Ethyl t-butyl ether	ND		2.5		ug/L			08/24/11 16:30	5

Surrogate	*% Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*96*		*67 - 130*		*08/24/11 16:30*	*5*
1,2-Dichloroethane-d4 (Surr)	*90*		*67 - 130*		*08/24/11 16:30*	*5*
Toluene-d8 (Surr)	*103*		*70 - 130*		*08/24/11 16:30*	*5*

Client: ARCADIS U.S., Inc.
Project/Site: BP #11102, Oakland

TestAmerica Job ID: 720-37069-1

Client Sample ID: MW-3 (8/22/11)
Date Collected: 08/22/11 11:50
Date Received: 08/22/11 14:04

Lab Sample ID: 720-37069-3
Matrix: Water

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MTBE	**2600**		10		ug/L			08/23/11 03:43	20
Benzene	ND		10		ug/L			08/23/11 03:43	20
EDB	ND		10		ug/L			08/23/11 03:43	20
1,2-DCA	ND		10		ug/L			08/23/11 03:43	20
Ethylbenzene	ND		10		ug/L			08/23/11 03:43	20
Toluene	ND		10		ug/L			08/23/11 03:43	20
Xylenes, Total	ND		20		ug/L			08/23/11 03:43	20
Gasoline Range Organics (GRO) -C6-C12	ND		1000		ug/L			08/23/11 03:43	20
TBA	ND		80		ug/L			08/23/11 03:43	20
Ethanol	ND		5000		ug/L			08/23/11 03:43	20
DIPE	ND		10		ug/L			08/23/11 03:43	20
TAME	**28**		10		ug/L			08/23/11 03:43	20
Ethyl t-butyl ether	ND		10		ug/L			08/23/11 03:43	20

Surrogate	*% Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*85*		*67 - 130*		*08/23/11 03:43*	*20*
1,2-Dichloroethane-d4 (Surr)	*100*		*67 - 130*		*08/23/11 03:43*	*20*
Toluene-d8 (Surr)	*92*		*70 - 130*		*08/23/11 03:43*	*20*

Client: ARCADIS U.S., Inc.
Project/Site: BP #11102, Oakland

TestAmerica Job ID: 720-37069-1

Client Sample ID: MW-4 (8/22/11)
Date Collected: 08/22/11 12:20
Date Received: 08/22/11 14:04

Lab Sample ID: 720-37069-4
Matrix: Water

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MTBE	**3.7**		0.50		ug/L			08/23/11 04:14	1
Benzene	ND		0.50		ug/L			08/23/11 04:14	1
EDB	ND		0.50		ug/L			08/23/11 04:14	1
1,2-DCA	ND		0.50		ug/L			08/23/11 04:14	1
Ethylbenzene	ND		0.50		ug/L			08/23/11 04:14	1
Toluene	ND		0.50		ug/L			08/23/11 04:14	1
Xylenes, Total	ND		1.0		ug/L			08/23/11 04:14	1
Gasoline Range Organics (GRO) -C6-C12	ND		50		ug/L			08/23/11 04:14	1
TBA	ND		4.0		ug/L			08/23/11 04:14	1
Ethanol	ND		250		ug/L			08/23/11 04:14	1
DIPE	ND		0.50		ug/L			08/23/11 04:14	1
TAME	ND		0.50		ug/L			08/23/11 04:14	1
Ethyl t-butyl ether	ND		0.50		ug/L			08/23/11 04:14	1

Surrogate	*% Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*85*		*67 - 130*		*08/23/11 04:14*	*1*
1,2-Dichloroethane-d4 (Surr)	*109*		*67 - 130*		*08/23/11 04:14*	*1*
Toluene-d8 (Surr)	*94*		*70 - 130*		*08/23/11 04:14*	*1*

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS

Lab Sample ID: MB 720-97704/4
Matrix: Water
Analysis Batch: 97704

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MTBE	ND		0.50		ug/L			08/22/11 20:05	1
Benzene	ND		0.50		ug/L			08/22/11 20:05	1
EDB	ND		0.50		ug/L			08/22/11 20:05	1
1,2-DCA	ND		0.50		ug/L			08/22/11 20:05	1
Ethylbenzene	ND		0.50		ug/L			08/22/11 20:05	1
Toluene	ND		0.50		ug/L			08/22/11 20:05	1
Xylenes, Total	ND		1.0		ug/L			08/22/11 20:05	1
Gasoline Range Organics (GRO) -C6-C12	ND		50		ug/L			08/22/11 20:05	1
TBA	ND		4.0		ug/L			08/22/11 20:05	1
Ethanol	ND		250		ug/L			08/22/11 20:05	1
DIPE	ND		0.50		ug/L			08/22/11 20:05	1
TAME	ND		0.50		ug/L			08/22/11 20:05	1
Ethyl t-butyl ether	ND		0.50		ug/L			08/22/11 20:05	1

Surrogate	*MB % Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*89*		*67 - 130*		*08/22/11 20:05*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*67 - 130*		*08/22/11 20:05*	*1*
Toluene-d8 (Surr)	*96*		*70 - 130*		*08/22/11 20:05*	*1*

Lab Sample ID: LCS 720-97704/5
Matrix: Water
Analysis Batch: 97704

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
MTBE	25.0	26.8		ug/L		107	62 - 130
Benzene	25.0	26.4		ug/L		106	82 - 127
EDB	25.0	26.5		ug/L		106	70 - 130
1,2-DCA	25.0	23.5		ug/L		94	70 - 126
Ethylbenzene	25.0	25.8		ug/L		103	86 - 135
Toluene	25.0	26.7		ug/L		107	83 - 129
m-Xylene & p-Xylene	50.0	53.7		ug/L		107	70 - 142
o-Xylene	25.0	27.4		ug/L		110	89 - 136
TBA	500	450		ug/L		90	82 - 116
Ethanol	500	440		ug/L		88	31 - 216
DIPE	25.0	28.1		ug/L		112	74 - 155
TAME	25.0	26.0		ug/L		104	79 - 129
Ethyl t-butyl ether	25.0	24.4		ug/L		98	70 - 130

Surrogate	*LCS % Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*103*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*93*		*67 - 130*
Toluene-d8 (Surr)	*104*		*70 - 130*

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS (Continued)

Lab Sample ID: LCS 720-97704/7
Matrix: Water
Analysis Batch: 97704

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Gasoline Range Organics (GRO) -C6-C12			500	420		ug/L		84	58 - 106		

Surrogate	*LCS % Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*102*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*95*		*67 - 130*
Toluene-d8 (Surr)	*105*		*70 - 130*

Lab Sample ID: LCSD 720-97704/6
Matrix: Water
Analysis Batch: 97704

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
MTBE			25.0	26.9		ug/L		108	62 - 130	0	20
Benzene			25.0	26.2		ug/L		105	82 - 127	1	20
EDB			25.0	26.5		ug/L		106	70 - 130	0	20
1,2-DCA			25.0	23.0		ug/L		92	70 - 126	2	20
Ethylbenzene			25.0	25.4		ug/L		102	86 - 135	2	20
Toluene			25.0	26.3		ug/L		105	83 - 129	2	20
m-Xylene & p-Xylene			50.0	52.7		ug/L		105	70 - 142	2	20
o-Xylene			25.0	27.0		ug/L		108	89 - 136	1	20
TBA			500	436		ug/L		87	82 - 116	3	20
Ethanol			500	429		ug/L		86	31 - 216	2	30
DIPE			25.0	27.8		ug/L		111	74 - 155	1	20
TAME			25.0	26.1		ug/L		104	79 - 129	0	20
Ethyl t-butyl ether			25.0	24.2		ug/L		97	70 - 130	1	20

Surrogate	*LCSD % Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*102*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*93*		*67 - 130*
Toluene-d8 (Surr)	*104*		*70 - 130*

Lab Sample ID: LCSD 720-97704/8
Matrix: Water
Analysis Batch: 97704

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C12			500	408		ug/L		82	58 - 106	3	20

Surrogate	*LCSD % Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*100*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*92*		*67 - 130*
Toluene-d8 (Surr)	*105*		*70 - 130*

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS (Continued)

Lab Sample ID: MB 720-97820/4
Matrix: Water
Analysis Batch: 97820

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MTBE	ND		0.50		ug/L			08/24/11 09:22	1
Benzene	ND		0.50		ug/L			08/24/11 09:22	1
EDB	ND		0.50		ug/L			08/24/11 09:22	1
1,2-DCA	ND		0.50		ug/L			08/24/11 09:22	1
Ethylbenzene	ND		0.50		ug/L			08/24/11 09:22	1
Toluene	ND		0.50		ug/L			08/24/11 09:22	1
Xylenes, Total	ND		1.0		ug/L			08/24/11 09:22	1
Gasoline Range Organics (GRO) -C6-C12	ND		50		ug/L			08/24/11 09:22	1
TBA	ND		4.0		ug/L			08/24/11 09:22	1
Ethanol	ND		250		ug/L			08/24/11 09:22	1
DIPE	ND		0.50		ug/L			08/24/11 09:22	1
TAME	ND		0.50		ug/L			08/24/11 09:22	1
Ethyl t-butyl ether	ND		0.50		ug/L			08/24/11 09:22	1

Surrogate	*MB % Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*93*		*67 - 130*		*08/24/11 09:22*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*67 - 130*		*08/24/11 09:22*	*1*
Toluene-d8 (Surr)	*99*		*70 - 130*		*08/24/11 09:22*	*1*

Lab Sample ID: LCS 720-97820/5
Matrix: Water
Analysis Batch: 97820

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
MTBE	25.0	29.6		ug/L		118	62 - 130
Benzene	25.0	27.6		ug/L		110	82 - 127
EDB	25.0	30.4		ug/L		122	70 - 130
1,2-DCA	25.0	26.0		ug/L		104	70 - 126
Ethylbenzene	25.0	27.3		ug/L		109	86 - 135
Toluene	25.0	26.9		ug/L		108	83 - 129
m-Xylene & p-Xylene	50.0	54.7		ug/L		109	70 - 142
o-Xylene	25.0	29.2		ug/L		117	89 - 136
TBA	500	481		ug/L		96	82 - 116
Ethanol	500	503		ug/L		101	31 - 216
DIPE	25.0	27.6		ug/L		110	74 - 155
TAME	25.0	26.3		ug/L		105	79 - 129
Ethyl t-butyl ether	25.0	26.1		ug/L		104	70 - 130

Surrogate	*LCS % Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*103*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*95*		*67 - 130*
Toluene-d8 (Surr)	*105*		*70 - 130*

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS (Continued)

Lab Sample ID: LCS 720-97820/7
Matrix: Water
Analysis Batch: 97820

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits		
Gasoline Range Organics (GRO) -C6-C12			500	414		ug/L		83	58 - 106		

Surrogate	*LCS % Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*102*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*93*		*67 - 130*
Toluene-d8 (Surr)	*107*		*70 - 130*

Lab Sample ID: LCSD 720-97820/6
Matrix: Water
Analysis Batch: 97820

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
MTBE			25.0	30.0		ug/L		120	62 - 130	1	20
Benzene			25.0	28.1		ug/L		112	82 - 127	2	20
EDB			25.0	30.4		ug/L		122	70 - 130	0	20
1,2-DCA			25.0	25.5		ug/L		102	70 - 126	2	20
Ethylbenzene			25.0	27.5		ug/L		110	86 - 135	1	20
Toluene			25.0	27.5		ug/L		110	83 - 129	2	20
m-Xylene & p-Xylene			50.0	55.3		ug/L		111	70 - 142	1	20
o-Xylene			25.0	29.2		ug/L		117	89 - 136	0	20
TBA			500	480		ug/L		96	82 - 116	0	20
Ethanol			500	489		ug/L		98	31 - 216	3	30
DIPE			25.0	28.0		ug/L		112	74 - 155	1	20
TAME			25.0	26.4		ug/L		106	79 - 129	0	20
Ethyl t-butyl ether			25.0	26.3		ug/L		105	70 - 130	1	20

Surrogate	*LCSD % Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*103*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*93*		*67 - 130*
Toluene-d8 (Surr)	*106*		*70 - 130*

Lab Sample ID: LCSD 720-97820/8
Matrix: Water
Analysis Batch: 97820

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C12			500	395		ug/L		79	58 - 106	5	20

Surrogate	*LCSD % Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*101*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*88*		*67 - 130*
Toluene-d8 (Surr)	*105*		*70 - 130*

GC/MS VOA

Analysis Batch: 97704

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-37069-1	MW-1 (8/22/11)	Total/NA	Water	8260B/CA_LUFT MS	
720-37069-3	MW-3 (8/22/11)	Total/NA	Water	8260B/CA_LUFT MS	
720-37069-4	MW-4 (8/22/11)	Total/NA	Water	8260B/CA_LUFT MS	
LCS 720-97704/5	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	
LCS 720-97704/7	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	
LCSD 720-97704/6	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	
LCSD 720-97704/8	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	
MB 720-97704/4	Method Blank	Total/NA	Water	8260B/CA_LUFT MS	

Analysis Batch: 97820

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-37069-2	MW-2 (8/22/11)	Total/NA	Water	8260B/CA_LUFT MS	
LCS 720-97820/5	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	
LCS 720-97820/7	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	
LCSD 720-97820/6	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	
LCSD 720-97820/8	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	
MB 720-97820/4	Method Blank	Total/NA	Water	8260B/CA_LUFT MS	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: BP #11102, Oakland

TestAmerica Job ID: 720-37069-1

Client Sample ID: MW-1 (8/22/11)

Lab Sample ID: 720-37069-1

Date Collected: 08/22/11 10:50

Matrix: Water

Date Received: 08/22/11 14:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	97704	08/23/11 02:42	LL	TAL SF

Client Sample ID: MW-2 (8/22/11)

Lab Sample ID: 720-37069-2

Date Collected: 08/22/11 11:19

Matrix: Water

Date Received: 08/22/11 14:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		5	97820	08/24/11 16:30	AC	TAL SF

Client Sample ID: MW-3 (8/22/11)

Lab Sample ID: 720-37069-3

Date Collected: 08/22/11 11:50

Matrix: Water

Date Received: 08/22/11 14:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		20	97704	08/23/11 03:43	LL	TAL SF

Client Sample ID: MW-4 (8/22/11)

Lab Sample ID: 720-37069-4

Date Collected: 08/22/11 12:20

Matrix: Water

Date Received: 08/22/11 14:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	97704	08/23/11 04:14	LL	TAL SF

Laboratory References:

TAL SF = TestAmerica San Francisco, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: BP #11102, Oakland

TestAmerica Job ID: 720-37069-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica San Francisco	California	State Program	9	2496

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: BP #11102, Oakland

TestAmerica Job ID: 720-37069-1

Method	Method Description	Protocol	Laboratory
8260B/CA_LUFTMS	8260B / CA LUFT MS	SW846	TAL SF

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SF = TestAmerica San Francisco, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: BP #11102, Oakland

TestAmerica Job ID: 720-37069-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
720-37069-1	MW-1 (8/22/11)	Water	08/22/11 10:50	08/22/11 14:04
720-37069-2	MW-2 (8/22/11)	Water	08/22/11 11:19	08/22/11 14:04
720-37069-3	MW-3 (8/22/11)	Water	08/22/11 11:50	08/22/11 14:04
720-37069-4	MW-4 (8/22/11)	Water	08/22/11 12:20	08/22/11 14:04

720 .37069

1332274

San Francisco
1220 Quarry Lane

Pleasanton, CA 94566
phone 925.484.1919 fax 925.600.3002

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

08/26/2011

Client Contact	Project Manager: Jason Duda	Site Contact:	Date:	COC No:
Broadbent & Associates	Tel/Fax: (530) 566-1400/ (530) 566-1401	Lab Contact:	Carrier:	of COCs
1324 Mangrove Ave Suite 212	**Analysis Turnaround Time**			Job No.
Chico, CA 95926	Calendar (C) or Work Days (W) ____			
(530) 566-1400	TAT if different from Below ____ STD X			SDG No.
(530) 566-1401	☐ 2 weeks			
Project Name: BP 11102	☐ 1 week			
Site: 100 Macarthur Boulevard, Oakland	☐ 2 days			
P O # GP09BPNA.C111	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	GRO by 8015	BTEX/5 FO + EDB by 8260	1,2-DCA and Ethanol by 8260	Sample Specific Notes:
MW-1 (8/22/11)	8-22-11	1050	GRAB	AQ	3		X	X	X	
MW-2 (8/22/11)		1119	GRAB	AQ	3		X	X	X	
MW-3 (8/22/11)		1150	GRAB	AQ	3		X	X	X	
MW-4 (8/22/11)		1220	GRAB	AQ	3		X	X	X	
~~TB-11102-0822201~~										~~ON HOLD~~

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other ____

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ____ *Months*

Special Instructions/QC Requirements & Comments:

5.8°C

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
James Ram	BA	8/22/11 1404	John Muller	TestAmerica	8-22-11 1404
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 720-37069-1

Login Number: 37069

List Source: TestAmerica San Francisco

List Number: 1

Creator: Mullen, Joan

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	5.8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

APPENDIX D

GEOTRACKER UPLOAD CONFIRMATION RECEIPTS

APPENDIX C

LABORATORY REPORT
AND CHAIN-OF-CUSTODY DOCUMENTATION

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A EDF FILE

SUCCESS

Processing is complete. No errors were found!
Your file has been successfully submitted!

Submittal Type:	**EDF - Monitoring Report - Quarterly**
Submittal Title:	**3Q11 GW Monitoring**
Facility Global ID:	**T0600100908**
Facility Name:	**BP #11102**
File Name:	**720-37069-1.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**9/28/2011 4:08:21 PM**
Confirmation Number:	**6044529736**

VIEW QC REPORT

VIEW DETECTIONS REPORT

STATE WATER RESOURCES CONTROL BOARD

GEOTRACKER ESI

UPLOADING A GEO_WELL FILE

SUCCESS

Processing is complete. No errors were found!
Your file has been successfully submitted!

Submittal Type:	**GEO_WELL**
Submittal Title:	**3Q11 GEO_WELL 11102**
Facility Global ID:	**T0600100908**
Facility Name:	**BP #11102**
File Name:	**GEO_WELL.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**9/28/2011 4:07:28 PM**
Confirmation Number:	**9055332958**